PACT

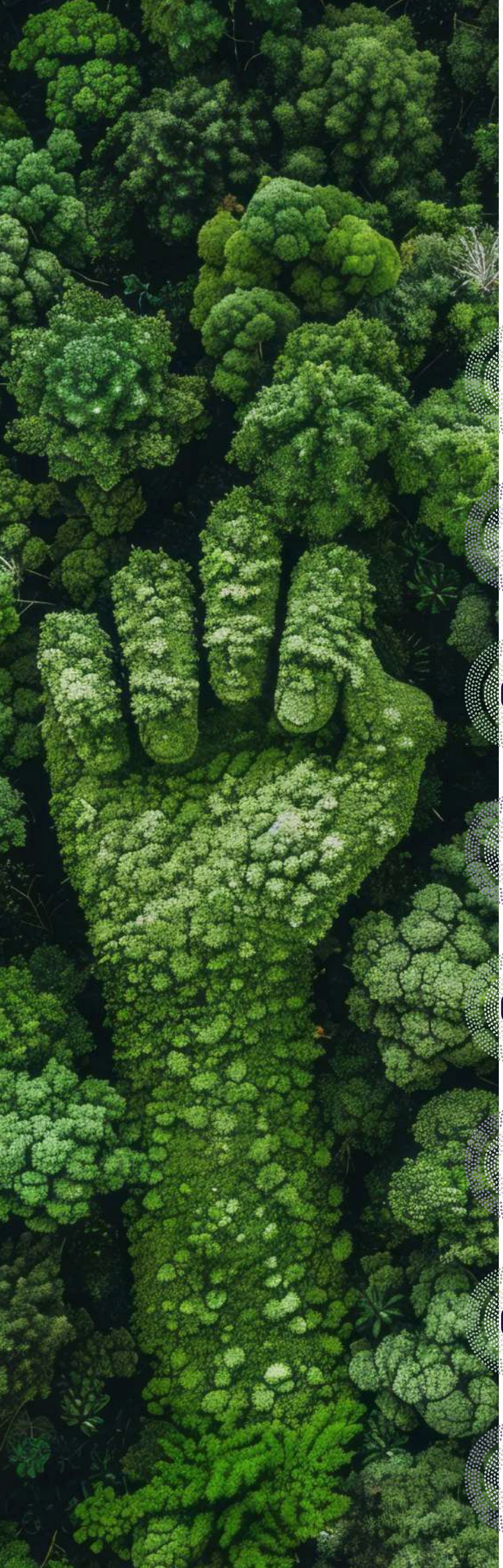
FOR SUSTAINABILITY

Product as a service to
Accelerate Cooperation and
Circular Transformation

WHITE PAPER

Business model innovation for sustainable impact in Europe

September 2024



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EXECUTIVE SUMMARY

Humanity is at a crossroad. Overconsumption and overproduction are threatening the future of our societies and economies. n the PACCT community we believe that, even though technology is indispensable, it cannot be the only answer: we must invent new ways of doing business, and distance ourselves from a linear, product- and volume-centric mindset.

This is where Product as a Service (PaaS) takes to the stage. These emerging models are replacing volume- and product-centric offers by customer-and service-centric solutions. Using PaaS models to reduce environmental impact is nevertheless a new concept. Even though it has been deployed and even scaled up in many industries, it is challenging to implement. It is for this reason that we have created the PACCT community and this White paper. We are convinced that it will shed light on innovative business models, and help companies and institutions understand how they can exploit them in order to improve their environmental impact. We will present use cases of companies that explore or deploy these models, and delve into two key factors that make these models successful: digital and finance. We will set out in detail how Product as a Service is related to European regulations and to the Green Deal. Scholars, academics and senior researchers from all around Europe will also share their views on these models. Finally, we will propose a number of recommendations, for both companies and institutions, in order to help accelerate the adoption of this new way of doing business.

KEY MESSAGES:

- PaaS models have a positive impact on the environment because suppliers , distributors and end-users are all aligned in maximizing efficiency, and use as few products as possible to generate the desired output. PaaS models do not push for volumes, but for customer satisfaction through managed usage.
- For this reason, PaaS models rely on high quality products, both long-lasting and eco-designed. PaaS Models are the exact opposite of planned obsolescence.
- PaaS models are not just another way to push products on the market. They redefine the relationship between suppliers and end-users, generating long term cooperative partnerships.
- PaaS models are highly customer centric: to make PaaS models successful, suppliers must fully understand end-users' needs and concerns.
- PaaS models generate long term recurring revenues, as opposed to short term transactional business.
- Implementing a PaaS business is demanding and requires a cultural transformation of the company.
- Implementing a PaaS model is not an overnight operation. It is best explored a small step approach, so as to reduce risks and scale faster.
- The priority, when developing PaaS models, is to find the right price, in line with the benefits they bring. They are high value offers and they must be monetized as such.
- Data and Digital are key to PaaS models, for at least two reasons: they provide the best customer experience, and capture usage data in order to guarantee the right level of service and constantly improve product and service design.
- There is nevertheless a limit to data usage: its environmental impact must not offset the positive impact of product quantity reduction.
- PaaS models are merely business tools. The intention behind their implementation is vital.
- PaaS models are facilitators for the circular economy, provided that suppliers are so minded.
- Academic research about PaaS models in Europe is ongoing in several countries. Cooperation between research centers should be further extended, and research on circular models and their impact should be significantly developed.
- Strong support from regulators is required as current regulations and accounting rules are designed for a linear economy. Companies must be helped in their transformation towards PaaS and Circular Models by suitable regulations and supportive institutions and financing.

Our partners

Xarvio Digital Farming is the BASF Group's digital agriculture subsidiary. "Better oversight, less risk and more reliability for the planning and decision-making. Xarvio Digital Farming Solutions helps farmers make the most out of their fields and field zones. Simple and straightforward. Increase efficiency, save time, optimize crop production – all while contributing to sustainable agriculture."

"The major upheavals the world is facing have strengthened the validity of Michelin's "All Sustainable" business model. A model which is based on three inseparable criteria: the growth and development of people, financial and operational performance, and the positive contribution of the Group's activities to the planet and its inhabitants."

Johnston Circular is a French consulting firm dedicated to accelerating the environmental transformation of our economy through innovative business models. François Johnston created this company in April 2023. He is the Former General Manager of Michelin's Tire as a Service Business Unit.

The American company ZUORA is the leader in providing cloud-based software that enables any company in any industry to successfully launch, manage, and transform into a subscription business. Zuora's purpose is to help people subscribe to modern ways of doing business – ways that are better for people, better for companies and ultimately better for the planet

The Solar Impulse Foundation is a non-profit organisation founded by Bertrand Piccard, the operator and pioneer of clean technologies. Its mission is to accelerate the adoption of solutions capable of protecting the environment by reconciling economic development with the ecological challenge.

Pacct for sustainability is made possible thanks to the strong support of ADEME, the French agency for environmental transition

— THE PACCT WHITE PAPER PROJECT TEAM —

This White paper is a collective document. In addition to our own experiences, we ran many interviews with professionals, companies and research institutions to collect the information share here. Our heartfelt thanks go to all those cited in this document who have agreed to spend time talking to us, reviewing our propositions, challenging points of views and proposing recommendations.

HIS IS THE TEAM WHICH INITIATED THE PACCT FOR SUSTAINABILITY WHITE PAPER PROJECT, WORKING ON IT THROUGHOUT 2024

Francois JOHNSTON

Editor in Chief

François is the founding partner of **Johnston Circular**, a consulting company dedicated to accelerating the environmental transformation of companies through the development of innovative business models. Prior to that, he's worked 25 years in industry, covering many aspects of the business: finance, HR, Sales... Among others, he's managed Michelin's **" Tire as a Service "** global business. He's also a father, a **teacher at Sciences Po Paris** and a board member at Cecler, **a French non profit organization caring for homeless people**.

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Joanna KROMBHOLZ-ZABIELSKA

"Financing Chapter" leader

Joanna is a service design and transformational process leader specialising in human-centred design. She holds a degree in Management, with postgraduate studies in Design Management and courses in Customer Experience and Climate Change. With over 20 years' experience in banking and entrepreneurship in Poland, Venezuela, Mexico and the Netherlands, she is a consultant, strategist and facilitator of change, focusing on transformations towards circular and regenerative business models.

Joanna leverages her recent leadership roles in Santander Bank's Customer Excellence Centre and Alior Bank's Innovation Office in the field of sustainable finance and PaaS promotion. She also advises companies on CSRD reporting and ESG strategies.

She is a co-founder of the Design For Change NGO in Poland and a mother of 3 girls.

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Gurvan GUENNEC

Global Project Leader

Gurvan is an engineer specializing in circular economy. After completing his studies, he undertook a six-month tour across Europe to explore new economic models, particularly focusing on usage-based models. During this journey, he met numerous professionals working in this field, including François Johnston. Together, they launched the **" PACCT for Sustainability "** community, with Gurvan serving as the project manager.

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Héloïse ABOULKER

"Company Use cases" leader

Héloïse is a strategic and commercial leader with extensive experience in purpose-driven growth strategy, innovation, and circular economy. With a background in strategic consulting at McKinsey, Héloïse has successfully led transformative initiatives across industries, including automotive, food and beverage, and digital platforms.
At eBay, Héloïse led the UK consumer selling business, a key player in the circular economy, where she drove significant growth and managed P&L responsibilities. At Jaguar Land Rover (JLR), Héloïse pioneered sustainable business models, steering the company toward innovative mobility solutions like subscription services and shared mobility.
Currently, at Online Earth, Héloïse advises global clients on sustainable growth strategies, helping multinationals transition to more resilient and environmentally responsible business models

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We've reported our work and ideas monthly to our financing partners:

Vincent DARGENNE *for ADEME* **I Arnault MERCIER** *for Michelin* **I Stephane DIERICK** *for ZUORA*
Yohann BEREZIAT & **Loic MAUJEAN** *for Xarvio BASF*

We also have been very lucky to be supported by the SCIENTIFIC ADVISORY BOARD:
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We once again want to thank them for their time and contribution to this White Paper:

Ann-Charlotte MELLQUIST *for RISE - Sweden* **I Dimitris KARAMITSOS** *for BASE Foundation - Switzerland*
Olli KUISMANEN *for TAMPERE University – Finland* **I Iain MCKECHNIE** *for ASG/Aston Business School – UK* **I Boris DESCOMBES** *for INP Grenoble – France*

PRODUCT AS A SERVICE:

a key component for achieving the environmental transformation of our economy

— THE CURRENT ENVIRONMENTAL CRISIS FINDS ITS ORIGIN IN OVERCONSUMPTION —

In 2024, 52 years after its drafting and publication, the conclusions of the Meadows[1] report are still relevant: the impact of human activity on the environment and the planet is considerable, questioning the very foundations of our societies and economies.

The current crisis finds its origin, among other things, in overconsumption[2], overproduction, and the overexploitation of natural resources. The global clothing and textile market is a good illustration.

TEXTILE MARKET: AN EXAMPLE OF A VOLUME ORIENTED ECONOMY AND ITS CONSEQUENCES ON THE ENVIRONEMENT

In twenty years, between 2000 and 2020, it increased from

58 Mt to **109 Mt**

while the world population grew from **6.1 Bn to 7.8 Bn** people.

In Europe in 2020, this represents per person, each year,

400 sqm
of land used

9 m³
of water

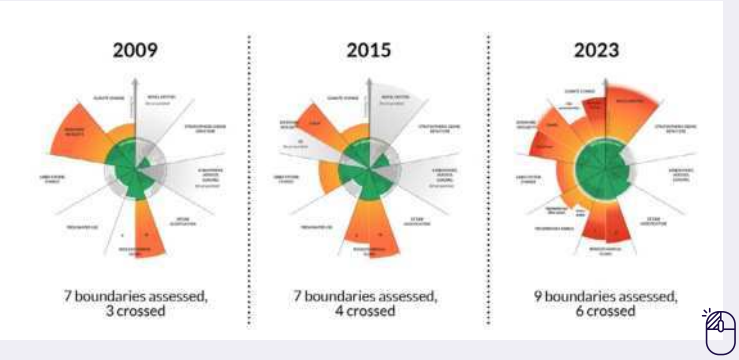
391 kg
of raw materials extracted[3]

Source: www.europarl.europa.eu

to be multiplied by 448 million inhabitants...

3. 3 Kg of raw natural cotton is needed to produce 300 gr. of cotton thread.

Stockholm University regularly reminds us: each year we exceed the limits of our planet a little more and a little earlier.



Credits: The evolution of the planetary boundaries framework. Licensed under CC BY-NC-ND 3.0 (Credit: Azote for Stockholm Resilience Centre Stockholm University. Based on Richardson et al. 2023 Steffen et al. 2015 and Rockström et al. 2009)

The European Union, like other international institutions, has taken up the subject. With the Green Deal, the goal is to **"transform the EU into a modern, resource-efficient, and competitive economy while ensuring:**

- **net zero greenhouse gas emissions by 2050**
- **economic growth decoupled from resource use**
- **that no one is left behind."**

These changes are extremely complex and require deep transformations. Like all economic actors, companies are at the heart of this turmoil because they are both responsible for it and suffering from its consequences, and because they hold the key levers to accelerate the environmental transformation of our economies.

No significant transformation will be possible without companies and entrepreneurs who, in any case, ihave no other choice in the long term but to integrate sustainability into their performance equation.

Technology is part of the answer, but many – including ourselves – are convinced that while essential and indispensable for finding the best solutions, it will not be enough to save the world we live in.

Beyond technology, we need to invent new modes of consumption and new business models.

We believe in the development of a new economy focused on usage rather than volume, on meeting people's needs and own environmental impact rather than maximizing sales of objects to customers.

Our source of inspiration is the Economy of Functionality and Cooperation (EFC) promoted in France by ADEME and inspired by the work of the ATEMIS laboratory.

EFC DEFINITION

The Economy of Functionality and Cooperation (EFC) consists in "gradually transforming the activities of companies and communities to create value by developing solutions focused on the real needs of users, responding to the social and ecological challenges of territories, and not by producing goods and services in volume."

It above all involves committing to the benefits of the use of a product instead of just selling it. This model – or at least substantial parts of it –already exists in all European countries and in all industries.

Examples of product as a service models or models implementing bricks of Product as a Service:

Air conditioning as a service	kaer
Insurance as a Service	YouDrive, Entrepreneurs d'Assurances, altima
Power by the Hour	Rolls-Royce, SAFRAN
Printer as a Service	RICOH imagine. change., Canon, xerox
Healthy Fields	BASF, xarvio
Light as a service	FUTURE ENERGY SOLUTIONS, signify
Tire as a service	MICHELIN, BRIDGESTONE
Tools Fleet Management	HILTI
Machine Tools as a service	TRUMPF, KAESER KOMPRESSOREN

...

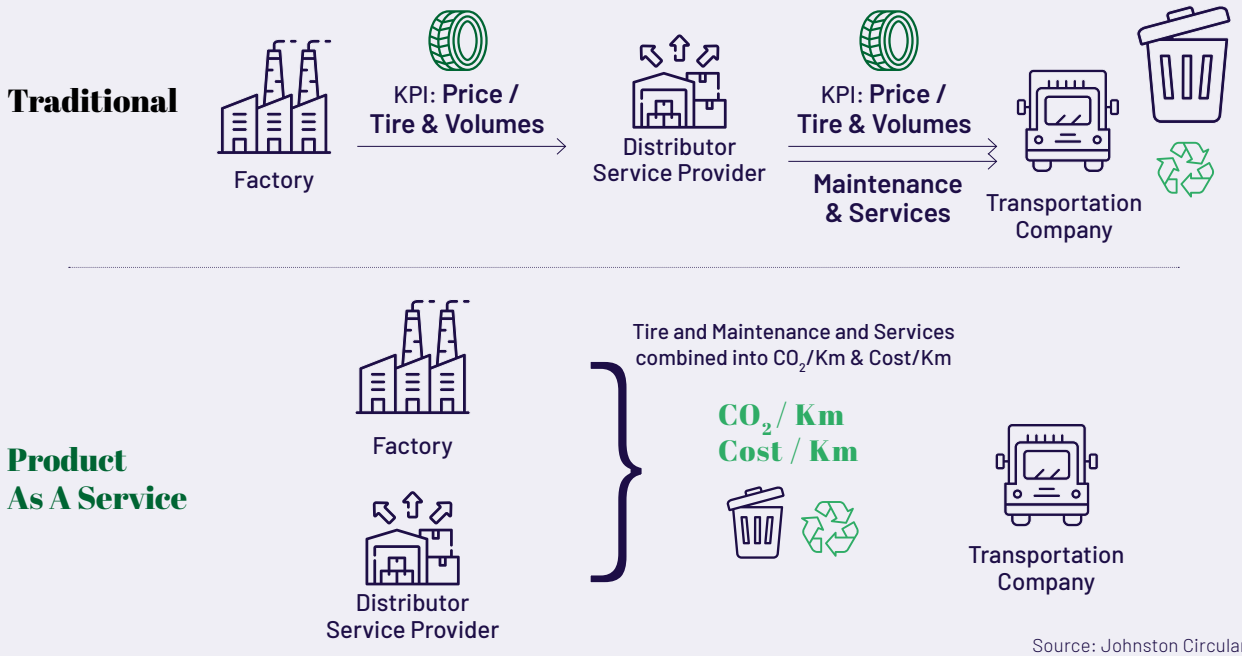
These models go by many different names: Product as a Service, pay per use, use or performance-oriented business models, Product Service Systems, Servitization, etc.

For ease of reading and for the sake of our European readers – institutions, companies, and research institutes – we will use the term "Product as a Service" (PaaS)

A business model is no more than a tool. It has no intrinsic value. What matters is the intention with which it is implemented. In this case, what matters to us is the consideration of environmental and social impacts. When we talk about "Product as a Service" in this document, it will cover both:

- the transition from product to service…
- … with a willingness to significantly improve the environmental and social impact throughout the value chain.

SHIFTING FROM A LINEAR BUSINESS MODEL TO A PRODUCT AS A SERVICE: example for the Truck Tire business



Source: Johnston Circular

In a traditional business model, the industrial manufacturers and the distributor are interested in maximizing volumes.

In a Product as a service model, suppliers invoice a Price/Km intergrating product and attached services. Both industrial manufacturers and distributor are therefore interested in minimizing the cost/km and CO_2 emissions/km of the transportation company. By using less tires for a given mileage, or recycling them more, they will increase their profits.

THE BENEFITS & CHALLENGES OF PAAS MODELS

Environmental benefits:

- **The supplier's interest is to use as few products as possible for a given usage objective:** the fewest tires for a given mileage, the least energy for a given lighting specification, etc.
- **Just as products need to last as long as possible**, they also need to be reused or reconditioned as often as possible. The "product as a service" thus becomes an accelerator of the circular economy.
- **The goal is to extract maximum value from an existing asset.** The more intensively it is used, the better the profitability.
- **This naturally leads to strongly driving eco-design of products**, that is, designing them to last as long as possible and to be reconditioned or reused as often as possible.
- **These models thus follow the exact opposite path to planned obsolescence:** the longer products and assets last, the more value is created for both the supplier and the customer.
- For all these reasons, they are **recognized by the European Commission**, are specifically cited in the CSRD and Taxonomy, and are identified as environmental transition models.

Business benefits:

- **Switching from a transactional relationship to a long-term recurring relationship:** these are often long-term contracts over several years. In air conditioning as a service, we are dealing with 15 to 20 year contracts; in tires, 3 to 5-year contracts...
- **Exceptional customer intimacy:** the supplier operates part of the customer's operations. This implies a particularly strong presence on the field, a deep understanding of operations, and daily interactions with customers' teams.
- **Strong differentiation:** these models are demanding and require a strong territorial network. They are therefore not easily accessible to competitors and are particularly differentiating as they generate a new form of relationship between suppliers and customers.
- **Increased robustness:** these models do not follow the same economic cycles as traditional linear models. They ideally complement a portfolio of offers. Moreover, the intensity of cooperation with customers makes these models particularly resilient in times of crisis.

Adopting PaaS model: A threefold Challenge

Cultural challenges

Selling and operating a service is very different from selling a product. It necessitates change and adaptation for executives and for teams.

Financial challenges

Carrying assets will change the game for suppliers; cash generation is not following the traditional path, and operating a service necessitates dedicated steering capabilities.

Operational challenges

The ways of organizing work and satisfying customers will also be significantly impacted.

It is because these models are essential to the environmental transition of our economy and because their adoption is demanding that we decided to create PACCT, a European community of actors united by the same ambition: to accelerate the transformation of our economy through the lever of business models.

Our primary commitment is to create and facilitate a community of companies, academics, and representatives of national and European institutions to share knowledge about PaaS models. This aims to ease their adoption and inform lawmakers about the real experiences and challenges faced by companies exploring these new avenues. This is the primary objective of this White Paper.

To do so, we will explore company use cases and share their experience in exploring PaaS models. We will then delve deeper into two key success factors: financing and leveraging Data, before sharing our understanding of how PaaS models connect to the European Regulations. We will then present an overview of the most recent and dynamic academic research, before recommending key initiatives to accelerate the adoption of PaaS models.

EXPLORING PAAS MODELS:

capitalizing on companies use-cases

DECATHLON

Decathlon, a leading global retailer specializing in sports equipment, has integrated a B2C as-a-service model as part of a broader circular economy strategy. **Decathlon promotes sustainability through circular business models including rentals mainly :** short-term daily rentals and monthly subscription rentals. This initiative is part of a comprehensive effort to encourage product reuse, repair, and resale, enhancing the scalability and impact of their sustainable business practices.

Website

Yann CARRÉ

Leader Rental Decathlon United

" The reason for adopting this model was to create economic value while reducing our environmental impact "

Key figures

Target segment

B2C

Sports people

(bikes, fitness equipment, outdoor equipments)

Perimeter

Mainly Europe so far but intend to scale everywhere

Subscription dynamics

Started in **2021**

>15M€ in 2024

Benefits

Price accessibility

(monthly fee for usage compared to acquisition total cost)

Flexibility & Convenience

Type of contracts

2 types of contracts

short-term daily rentals, monthly subscription rentals.

Subscription

fee / month

min 3 month engagement

Pricing & Value

Cost plus approach

Price based on the market. Depends of the sports and geographies

Sustainable Impacts

5x less CO_2 emissions / € of net margin

(compared to the traditional linear business)

DECATHLON

Challenges & Orientations

Decathlon adopted the PaaS model as a contributor to reduce the 75% of their environmental impact from producing sports goods, aiming to reduce this impact while maintaining economic value. Since 2016, their mission has focused not only on making sports accessible but also on a sustainable way through a global strategy including the development of circular business models.

Data is vital for the model's success, guiding decisions on offers, pricing, and services. Tracking data on contracts and product lifecycles allows timely updates and maintenance, enhancing customer experience. Integrating repair, second life, and rental requires precise asset valuation and financial management. Embracing digital transformation is challenging but essential for evolving from traditional retail to an omnichannel approach.

Successful implementation depends on strong top management support for securing resources and driving change, it must be a strategic decision to succeed. Transitioning to a circular model involves significant updates to finance, traceability, logistics, and risk management systems. Decathlon is addressing these needs by prioritizing and investing in new processes for scalability.

Clear KPIs are crucial for long-term success. Decathlon's key indicators include a customer satisfaction rating of 4.8 out of 5 with over 100,000 subscriptions, significant business volume for global validation, and monitoring CO_2 emissions/€ of net margin to assess environmental impact.

Internally, Decathlon must ensure cross-departmental collaboration, while externally, greater cooperation with partners, insurers, and service providers is necessary. Leveraging existing assets and forming strategic partnerships are crucial for this cultural shift.

Financially, transforming stock into fixed assets complicates financial flows, requiring adaptation to regular cash flows from ongoing contracts. Managing circulating stock with seasonal and regional variations adds complexity, and Decathlon continues to address these challenges with ongoing senior management support.

"The data is the basis of all the decision that we have to take"
"I really do think that a circular business is a more collaborative business than a linear business."

Advice & recommendations

For institutions:

To support Decathlon's goal of reducing environmental impact and promoting sustainable urban mobility, institutions should facilitate the shift from cars to bikes. Just as the car industry's transition to electric vehicles was helped by tax reductions and subsidies, similar support for cycling is essential. While there are already financial aids for corporate bike leasing, similar support should be extended to bike subscription models. Institutions should adopt a more holistic approach, supporting various models to achieve more sustainable urban mobility and cover the main use cases.

For companies:

Form strategic partnerships: Work with external partners to enhance service offerings.

Test and refine: Experiment and use feedback to improve the model gradually.

Gain executive support: Use data and KPIs to secure leadership backing.

Set a long-term vision: Define goals and key metrics for ongoing improvement.

3TEMP

3TEMP is a Swedish company specializing in coffee machines. Since 2019, 3TEMP has offered a " Brew-as-a-Service " (BaaS) model to enhance coffee experiences for businesses. Despite starting early, they had to significantly scale down the offering to survive financially. The offer includes maintenance, water filters, coffee filter paper, and a selection of specialty coffees, along with a community group for sharing coffee-related ideas and education.

Website

Peter LARSSON
CO-Founder

" The biggest value of the offer is the environmental impact "

Key figures

Target segment

B2B
Bars, coffee chains...

Perimeter

BaaS in Sweden and UK for test

Maturity & business size

Started in **2019 with BaaS (PaaS)**

Benefits

Uptime
Quick Service
Focus on Business

Customer Care
Reduction of the environmental impact

Uptime Ensuring the machine works all the time with proactive maintenance
Quick Service Connectivity allows for rapid service response anywhere
Focus on Business Customers can focus on their business rather than the machine

Customer Care The system provides a sense of security, with continuous updates and new recipes
Reduction of the environmental impact (less coffee & energy used)

Type of contracts

Fee/month

Pricing & Value

Cost plus approach
Price based on on the machine's lifetime including duration (3, 5, 10, or 20 years), residual value, spare parts, and maintenance logistics

Sustainable Impacts

Up to 40% less coffee
Uses half the coffee compared to a Nespresso or Italian machine

9/10 problems solved by IoT/ online service. Less service travelling.

Up to 20 times less energy
in standby mode compared to tank/boiler systems

Challenges & Orientations

3TEMP team started exploring eco-design with RISE in 2005- 2006, focusing on reducing standby energy and service inefficiencies in coffee machines. They learned that many issues could be resolved remotely via the data, highlighting the need for online connectivity from the start. By 2014, they aimed to innovate with an energy- on-demand machine and remote monitoring. Their business model evolved into Product-as-a-Service (PaaS) after presenting to RISE in 2019. However, the COVID-19 pandemic, followed by the Russian-Ukrainian conflict and inflation, significantly impacted their operations.

Rising component costs forced them to shift back to a traditional distribution model for survival. Although Brew-as-a-Service is valued by customers, financial constraints have limited its expansion. Despite its benefits in providing detailed machine data and enhancing service, the company struggled to fully integrate customer needs with the new model.

3TEMP manages all software and service internally but had difficulties managing the level of service provided by their U.S. distributor network. To resolve this, 3TEMP has invested in improving user experience (UX) and training for their distributors, ensuring better service and clearer financial arrangements.

"It's been ups and downs with the model, we had the pandemic and the war. BaaS could come back again with large customers"

Advice & recommendations

For institutions:

Financial Support: Provide stronger financial backing for innovative business models like Product-as-a-Service. Enhanced funding or incentives from the government or EU could significantly boost adoption and development.

For companies:

- **Invest in Connectivity and Data:** Ensure all systems are online from day one to enable remote problem resolution and efficient service management. Leverage data to optimize operations.
- **Start with Pilot Projects:** Run real-world trials to refine your product and business model based on actual customer feedback rather than theoretical simulations.
- **Focus on Service and Training:** Invest in training for distributors and partners to ensure high-quality service and avoid issues where service quality does not match financial arrangements.
- **Prepare for Financial Challenges:** Be ready to adapt to financial pressures and market fluctuations. You may need to revert to traditional models temporarily to stay financially viable.
- **Commit to Long-Term Adaptation:** Be prepared for ongoing adjustments and long-term commitment to successfully transition to and sustain a PaaS model.

ETAP LIGHTING

ETAP Lighting International is a family-owned SME with over 70 years of international experience, offers Circular Light-as-a-Service for offices, industrial buildings, healthcare, education facilities, and indoor sports venues. The company engages with a circular approach in performance contracts guaranteeing high-quality general lighting comfort, up to 70% energy savings and compliant emergency lighting over the full project lifecycle up to 20-years.

Video | Website

Dominiek PLANCKE
CEO

"C-LaaS is crucial to move the industry towards a circular economy since ownership stays at the manufacturer"

"We are betting our future on C-LaaS"

webinar

Key figures

Target segment

Building owners (hospitals, industry, schools...), renovation market

B2B

Perimeter

Europe

Maturity & business size

Started with **C-LaaS in 2019**

Benefits

Lowest Total cost of Ownership

Long term peace of mind

Sustainability

Flexibility

Lowest Total Cost of Ownership: reduced energy and maintenance costs. No upfront investment required

Long term peace of mind: ETAP manages design, installation, maintenance, and guarantees consistent light quality and energy efficiency.

Sustainability: Applies circularity principles at every stage of the installation lifecycle.

Flexibility: Options to extend, refurbish and upgrade, transfer ownership at end-of-contract or request for a circular end-of-life treatment.

Type of contracts

Fee per year

Performance commitment up to 20 year

Pricing & Value

Individualized fee

Based on fully underpinned C-Laas investment dossier worked out by ETAP

Sustainable Impacts

Reduce the environmental impact
ETAP offers as a service up to 70% energy savings with a circular approach

Challenges & Orientations

With 35% of all energy-related EU emissions, the construction industry faces a major challenge to achieve net-zero. To reach the 2030 target of a 55% reduction, the renovation rate of buildings must more than double. But how can we accelerate renovation without depleting natural resources faster?

This challenge led ETAP to reassess its purpose and corporate strategy. ETAP began developing customized refurbishment solutions to renovate existing equipment without altering ceilings. Circular product design guidelines were created to align its offerings with the principles of endless, effortless, and wasteless design. Progress is measured using the circularity index and lifetime efficiency score, assessing alignment with circular economy principles and comparing environmental impacts to market standards.

ETAP also introduced its Circular Light-as-a-Service (C-LaaS) proposition, rooted in the belief that the circular economy requires manufacturers to retain ownership of their products. C-LaaS performance contracts relieve customers at every stage of the installation life cycle, incorporating circularity principles. Key considerations include reducing luminaires, refurbishing existing installations, optimizing energy efficiency and longevity, improving maintenance with monitoring systems, and providing circular end-of-life options for customers

Transitioning to an "as-a-Service" model necessitates a company-wide transformation. In R&D, this involves developing reusable platforms and integrating sensors that comply with open standards, which aids in managing evolving supplier relationships. The shift from product sales to a service model reconfigures relationships, making installers partners and replacing traditional transactions with performance contracts, demanding new skills for sales teams. Customized manufacturing driven by engineering to order replaces mass production of standardized products.

Advice & recommendations

For institutions:

For Dominiek Plancke, the key recommendation for public authorities is to lead by example: if they don't adjust their tendering processes to reflect sustainable practices, they aren't truly committed to their own goals, which affects companies looking to engage in sustainability.

For companies:

- **Define Your Value Proposition:** be focused on building a solid value proposition step-by-step.
- **Cultural Transformation:** Recognize that this model requires a deep organizational shift, and changes in ways of working.
- **Perseverance:** Expect setbacks and be prepared for on-going adjustments. Engage with end users, adapt based on feedback, and maintain focus on standardization despite industry and regional differences.
- **Standardization:** Ensure your offer is standardized and mature before scaling. Choose a test market to refine your approach before expanding more broadly.

HP

HP Inc. has developed a service motion by leveraging its experience in the printing sector, where they provide flexible and efficient pay per use solutions. With sustainable development in mind, HP is now extending similar innovative approaches to their computing products. They offer various business models, including Managed Device Services for flexible cost management, and their latest addition, Sustainable Impact Services. The Sustainable Impact model focuses on efficient fleet management by transitioning from a linear to a circular approach. This model aims to reduce the carbon footprint by extending the lifecycle of devices and minimizing excess stock.

Video Website

Burcu TUNCER
Circular Economy Program Manager at Global Sustainability Compliance

Gilles VERCAEMER
Strategic Engagements

"We want to provide a turnkey solution that really impacts the sustainable development plans of our Client"

"Sustainability is the 3rd dimension of workplace budget, in addition to performance and costs"

Key figures

Target segment

B2B : Companies with extensive device fleets needing efficient management and sustainability solutions

Perimeter

Global

Maturity & business size

Started in 2022

Benefits

Cost Efficiency

Simplified Device Management

Environmental Impact Reduction

Enhanced Security & Quality

Cost Efficiency Reduces upfront costs and optimizes total cost of ownership (TCO) over a longer lifecycle.

Simplified Device Management Includes hardware, support services, and installations, reducing the need for extensive cold stock.

Environmental Impact Reduction Extends device lifecycles and reduces carbon footprint.

Enhanced Security and Quality

Type of contracts

Pay to use
Monthly fee

Up to 7 years contract

Pricing & Value

Cost based pricing

Sustainable Impacts

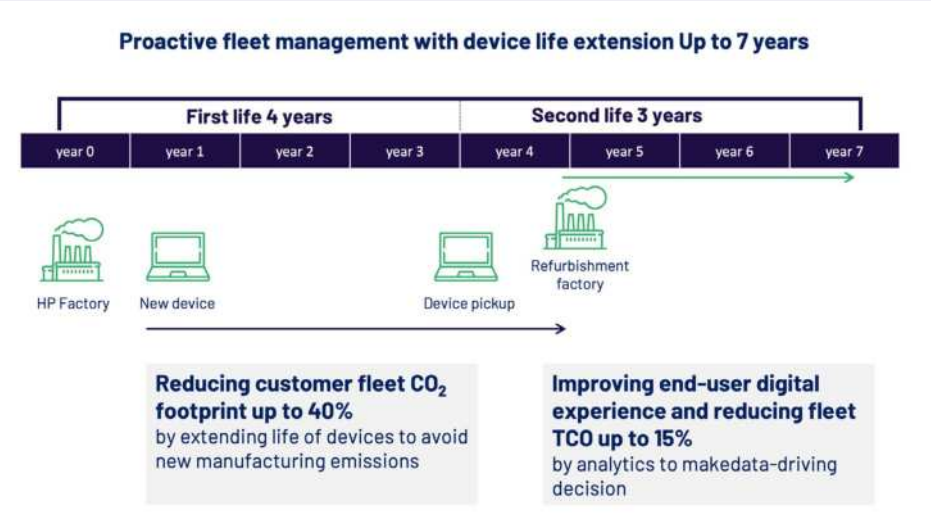
Up to 40%*

Reducing customer fleet CO_2 footprint

Up to 15%

Improving end-user digital experience and reducing fleet TCO

** Outcomes are based on each customer fleet assessment and are subject to change. Calculations are based on LCA analysis and assumptions provided by HP.*



HP Managed Device Services

HP entered the Device-as-a-Service (DaaS) market for two primary reasons: Firstly, customers regularly sought lower prices by frequently comparing market options, making it inefficient for HP to constantly adapt to these demands. Secondly, some customers, becoming more environmentally conscious, wanted IT solutions that were more sustainable. HP could utilize its extensive experience in the printing industry, transitioning from selling products to providing services based on usage, as well as its long-standing expertise in ecodesign, to boost their competitiveness in computing.

Device as a Service (DaaS) is generally seen as a model where companies pay a monthly fee to use hardware instead of buying it outright. This approach includes hardware, support, and installations, and helps companies avoid large upfront costs by managing devices on a subscription basis. However, it still is a linear model: businesses use the hardware for a set period (typically three to four years) and then replace it by new ones. This can lead to inefficiencies and increased environmental impact due to the fixed replacement cycle.

Sustainable DaaS (HP Managed Device Services) addresses these environmental concerns by shifting to a circular model. Unlike traditional fleet management, which often maintains a "cold stock" of spare devices (ranging from 6-30% of the fleet), Managed Device Services extends the lifecycle of laptops. Devices are refurbished after 3-4 years to extend their lifespan up to 7 years, reusing essential components like the display, motherboard, and SSD to reduce environmental impact. This model also uses data analytics to better align devices with user needs, ensuring older devices are more effectively used. MDS decreases the GHG emissions associated with device life cycle management. Maintaining device functionality enables customers to extend the use of their existing devices, mitigating emissions associated with manufacturing new devices.

A focus on regulations

Circular Economy and Refurbishment Challenges:

While some EU nations promote reuse, current regulations do not create equal opportunities or adequately support circular business models like HP's Managed Device Services. For instance, Article 58 of France's AGEC Law specifies that 20% of public procurement funds go to reused or recycled content. Managed Devices Services, which extend fleet lifespan, are excluded from this requirement due to the lack of ownership transfer to customer. Another significant challenge is waste transport regulations; starting in 2025, the Basel Convention will broaden its scope to cover all e-waste, complicating reverse supply chains for repair and refurbishment. Additionally, cybersecurity concerns persist, with ANSI recommending that refurbished devices be handled by original manufacturers to ensure security and quality.

Recommendations and Strategic Adjustments:

HP proposes several solutions to these obstacles. First, they call for more consistent circular economy regulations aligned with current business models and coherent across EU Member States. Green public procurement should recognize both products and services that extend product lifespans. Second, HP stresses the need for quality benchmarks for refurbished products, ensuring longevity and functionality. For example, HP's Certified Refurbished Hardware program includes functional testing, data sanitization, and genuine HP parts. Third, they recommend simplifying paperwork for international e-waste transport to boost efficiency and reduce costs. HP also supports incentives for closed-loop systems and take-back services under Extended Producer Responsibility (EPR) schemes, improving recycling, environmental protection, and logistics.

KAER

Kaer specializes in delivering cooling solutions to commercial and industrial buildings across Asia. As pioneers in the Cooling as a Service (CaaS) model, Kaer offers outcomes, such as maintaining a specified temperature within a building, while retaining ownership of the equipment. They handle the installation, maintenance of the technology, and infrastructure management. Clients benefit from a usage-based payment model, where lower consumption results in reduced costs.

Video | Website

David MACKERNESS
Managing Director

" We collaborate with our customers to provide low-carbon cooling solutions that enhance their operations and help them achieve their ESG goals "

Podcast

Key figures

Target segment

Building owners & operators
(hotels, restaurants, hospital...)

B2B

Perimeter

Singapore & **South East Asia**

Maturity & business size

Established in **1952** and started CaaS in **2013**

Benefits

Outsourcing
Guaranteed uptime

Access to data
Sustainable impact

Focus on core business through **outsourcing** of non-core **activities**
Get **guaranteed Uptime** and **minimized operational risk**

Access to data consumption and carbon emission
Improve building **sustainable impact**

Type of contracts

Guaranteed temperature inside the building

15-to-20-year contract with high flexibility

$/RTH (refrigerant ton hour) fee based on cooling used. (similar to kWh in electricity procurement)

Pricing & Value

Building by **building pricing approach**

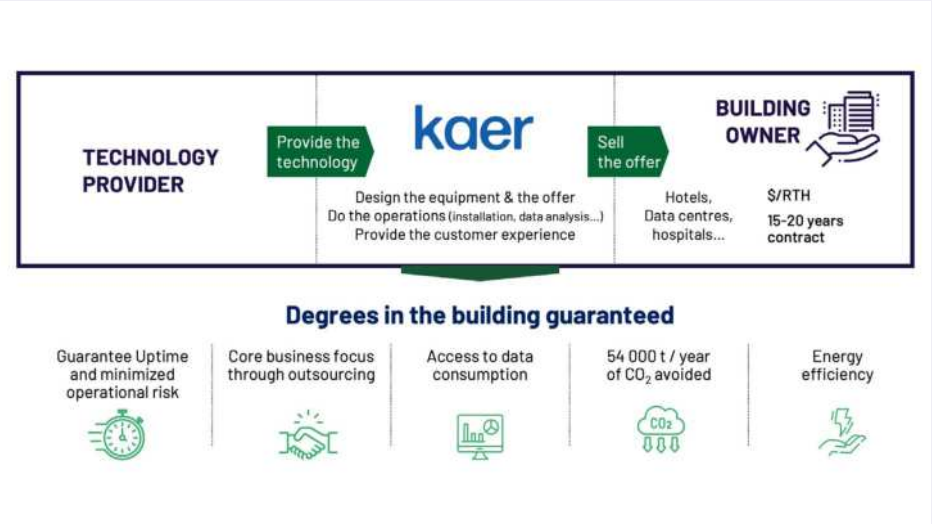
Cost based pricing

Sustainable Impacts

Energy efficiency

Through the Cooling as a Service model, Kaer's portfolio saves over **54,000 metric tons of CO_2 every year**

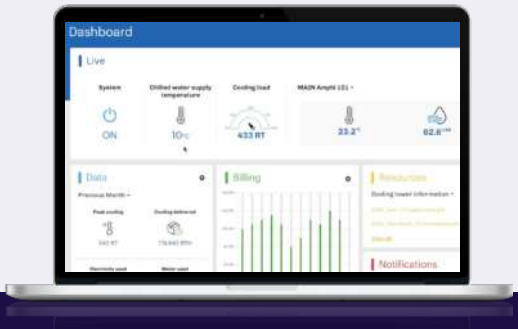
kaer



Challenges & Orientations

Kaer transitioned to a Cooling as a Service (CaaS) model to **meet customer demand**. Customers were not interested in energy efficiency alone but desired a guaranteed temperature in their spaces. Kaer's survey revealed that over **half of the potential customers found adopting low carbon cooling solutions too complicated.** In response, Kaer adopted in 2013 a service-oriented approach that sells the desired outcome rather than just energy savings.

Kaer's initial challenge in 2013 was transitioning from a **CAPEX-heavy business** with a long lifecycle (15-20 years) into a unified pricing package and to explain this shift to customers. They overcame this difficulty by going from a technical segmentation (building type) to an owner **behavior segmentation**, targeting customers receptive to the benefits of a CaaS model.



Kaer is expanding its CaaS portfolio in Asia, driving faster customer acquisition. **Customer experience, data analytics & visualization** is now at the core of the offer. Kaer developed Kaer Connect, **a customer experience portal that helps customers understand and trust the CaaS model.** This platform provides customers with essential data, helping them monitor their environmental impact and optimize performance.

Financing for Kaer's CaaS model is vital due to the significant capital required. They are capitalizing on the growing availability of green investments to support their expansion. While managing a large asset portfolio remains complex, Kaer is handling it effectively.

Another key focus for Kaer is their **50/50 target strategy**, which aims to reduce energy consumption by 50% through innovative technology, design, and practices, while sourcing renewable energy for the remaining 50%.

"In the beginning, we offered both CaaS and traditional products. We now exclusively provide CaaS and this is the best decision we have made."

"You can build tools and systems to support customers and transition them to the business model"

Advice & recommendations

For institutions:

- Standardizing ESG reporting
- Harmonize regulatory complexity across countries.

For companies:

- Keep risk within your business, not with your customers.
- Commit fully to a service-oriented approach.
- Focus more on delivering outcomes rather than just selling a product.
- Simplify both data management and technological implementation for your customers
- Customer experience is key to allows customers to understand, trust and find the real value of a PaaS offer.

"I think simplification of complicated industries is where servitization really has potential"

MICHELIN

Michelin, a global leader in tire manufacturing, offers a service called Effitires that provides best-in-class tire management for fleets. This all-inclusive solution includes the tires and all associated services (maintenance...). Michelin promises a predictable pricing model that adapts to the fleet's activity, charging per kilometer, which benefits cash flow as fleets pay as they go.

Video | Website

Arnault Mercier
Segment Director, Services & Solutions Business Line-SES

Oana Dumitrache
Business Model Leader, Long Distance Transportation Business Line

"We help fleets enhance their safety and reduce their environmental impacts : CO2, raw material"

"Our value lies in the execution of the offer"

webinar

Key figures

Target segment

Largest transportation fleets, with international footprint. People & goods mobility, B2B

Perimeter

Europe mostly

Maturity & business size

50 years

> 400 000 vehicles

Benefits

Peace of mind

Safety

Productivity

Sustainability

Type of contracts

Pay per kilometer

3 to 5 years contract

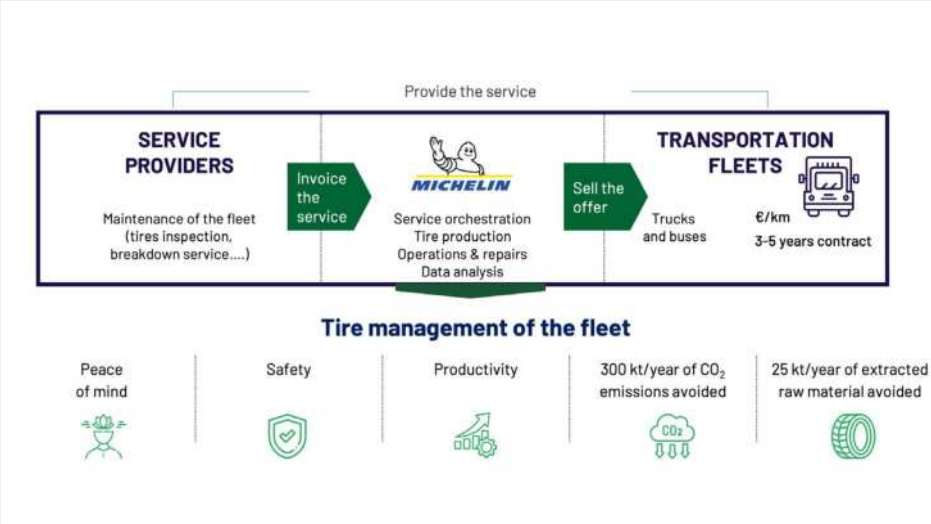
Pricing & Value

Legacy offer cost-oriented with customized approach based on customers reality & needs

Sustainable Impacts

300 000 t of CO_2 avoided each year

25 000 t of extracted raw material avoided



Challenges & Orientations

Michelin wants to shift from a cost-based to a value-based pricing model as kilometer-based pricing does not reflect properly the benefits of the solution, such as enhanced safety, sustainability and reduced downtime.

Newly developed connected solutions and their associated digital insights will be instrumental to unlock full offer value, in a more efficient and transparent manner, for both fleets and service providers.

Cooperation with service providers is crucial. Outsourcing parts of the service delivery requires careful alignment on success KPI and value sharing with service providers. Clear cooperation frameworks are necessary to ensure mutual dependency leads to shared success

Coexisting with traditional "product centric" businesses has generated challenges in the past. Defining the strategic fit of your PaaS business, demonstrating the value it generates (internally & externally) and aligning key stakeholders are key steps towards success.

"Digitalizing makes the PaaS model more valuable and more tangible by backing it up with additional data & insights."

"Integrating environmental impact is a constant concern"

Advice & recommendations

For institutions:

CSRD criteria is about owning the asset on the supplier side. CSRD and taxonomy should focus on the effect, not on who owns the assets.

For companies:

- Position your offer from a market differentiation perspective, highlighting non-financial benefits.
- Cooperation and good relationships are key when choosing you partners to operate the offer.
- Effectively manage your risks.

SKF

SKF RecondOil, part of SKF Group, is promoting a circular use of industrial oil with their «Oil-as-a-Service» offer." This model transforms oil from a consumable into an asset, with a service contract that includes hardware, consumables, oil condition monitoring, filter changes, and technical support to ensure ultra-clean oil at all times.

Video | Website

Gustav KRUUSVAL

Business Development Manager

"By avoiding oil changes, we reduce CO_2 emissions and make your machine last longer, perform better, and require less maintenance"

Key figures

Target segment

Manufacturers

B2B

Perimeter

Global

Maturity & business size

RecondOil was a 10 years old start up in Sweden when it was acquired by SKF **in 2019**

Benefits

Sustainability
Cost Savings
Performance

Sustainability Saves CO_2 emissions, extends machine life, and reduces maintenance needs.

Cost Savings Cuts costs related to oil contamination, such as changing, transporting, disposing, and reducing machine wear and tear.

Performance Enhances machine performance, improves product quality, increases energy efficiency, and boosts reliability

Type of contracts

Average **3 years** contract

Monthly fee

Guarantee ultra-clean oil at all times

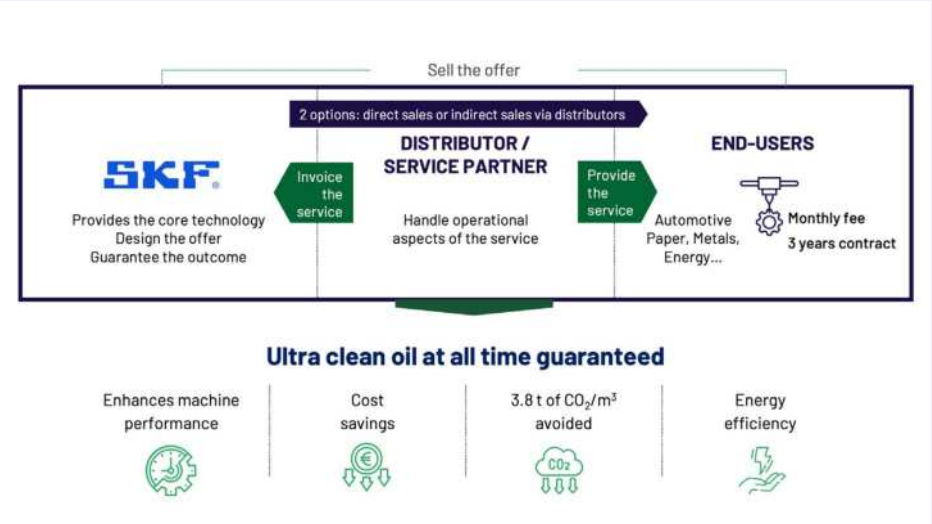
Pricing & Value

Value based pricing

Process: configure technical solution adapted to customer needs, define proper service level, and estimate customers' savings.

Sustainable Impacts

CO_2 emissions **can be avoided.**
3.8 tons per every m^3 of oil that does not have to be changed



Challenges & Orientations

Managing customer experience is a key focus in the Oil as a Service delivery. The RecondOil solution is continuously regenerating the oil 24/7 which requires regular oil condition monitoring.While integrating cost-effective sensors for real-time monitoring is a goal, SKF currently relies on regular oil sampling due to challenges in sensor accuracy. SKF is working with partners to develop continuous monitoring solutions, aiming at eliminating the need for sampling and lab analysis. RecondOil's oil cleaning solution is however connected and key operational data can be accessed via a cloud solution.

Monitoring the profitability of different offers, especially in service-oriented models, presents a challenge for SKF, given that their systems were initially designed for transactional product businesses. While their SAP environment includes service codes, effective use requires proper training to distinguish service business from traditional product sales. Currently, profitability tracking involves a mix of manual follow-ups and ERP adjustments. As service contracts grow, SKF acknowledges the need to enhance their ERP system to better manage and track service-related profitability efficiently.

SKF understood the importance of cooperation by selecting and working with the right distributors for their " RecondOil " service. The company focuses on finding partners for their Oil as a Service offer. SKF encourages partners to adopt Oil-as-a-Service model by demonstrating the value it can bring, ensuring a consistent customer experience whether the contract is with SKF or through a partner.

Managing change within the sales teams involves integrating experts in oil condition and services to complement the traditional sales force. SKF therefore started recruiting specialists to support salespeople in transforming leads into actual business. This approach effectively combines specialized knowledge with existing resources, without needing to expand the sales force extensively.

"We don't see the problem of managing customer change. If we have a good setup, the customer understands the value they get."

Advice & recommendations

For institutions:

Currently, SKF is supporting a European regulation more favorable to the circularity of lubricants. SKF hopes that future regulations will foster a broader adoption of circular approaches, rather than leaving them as niche solutions. Additionally, regulatory barriers currently treat waste oils as hazardous waste, making it more difficult to regenerate and reuse. SKF advocates for viewing lubricants not just as consumables but as critical, sustainable assets integral to machinery.

For companies:

- Build the right ecosystem to implement such model by carefully selecting partners that see the value of such offers.
- For a successful "as-a-service" transition, securing top management's commitment is essential

"Get everyone on board, understand that this can be a very big business if we do it right"

TAMTURBO

Since 2010, Tamturbo has been designing and selling air compressors for various industrial sectors. in order to ease adoption of their new technology and initiate long term relationship with customers,... Tamturbo introduced the " Touch-Free Air " service. Instead of purchasing compressors, clients pay per cubic meter of compressed air used and/or for the energy savings achieved.
This renewable contract ensures high-quality compressed air and incentivizes Tamturbo to maintain optimal machine performance with minimal maintenance.

Website

Igor NAGAEV
Chief Executive Officer

" This offer addresses environmental concerns by reducing energy consumption and lowering CO2 emissions through heat recovery."

video

Key figures

Target segment

Industries
Large companies
B2B

Perimeter

Europe (45%)
USA (45%)
Middle East (10%)

Maturity & business size

Started in **2017**
10% of the total business

Benefits

Cost Savings
No Upfront Investment
Ease of operations
Quality
Environmental Impact

Cost Savings Customers pay only when they use the air and recovered waste energy, and benefit from reduced service costs and energy recovery.

No Upfront Investment No need to purchase compressors, making it financially accessible.

Ease of operations Tamturbo handles maintenance and operations.

Quality 100% oil-free air (compress the air without the use of oil in the compression process)

Environmental Impact: Reduced energy consumption and CO_2 emissions

Type of contracts

$/m3 of air and $/MJ of heat
Contract **duration < 1 year**

Pricing & Value

Tailored for each customer
Based on usage and energy savings

Sustainable Impacts

Reduction of energy consumption and CO_2 emissions
Tamturbo offers its clients the **option of recovering** the heat produced by the compressors

Challenges & Orientations

A key challenge for Tamturbo is the short contract duration imposed by financial regulations, which classify long-term service agreements as financial leasing. This limits Tamturbo to less than one year contract, even though longer terms (5, 7, or 10 years) are preferred by both the company and its customers, restricting their ability to fully realize the service's value.

Tamturbo's extensive data usage is crucial for maintaining high uptime and reliability. With compressors monitoring about 200 parameters via 4G connectivity, Tamturbo can effectively manage performance and easily address issues.

Scaling the service involves overcoming financing and installation challenges. The significant capital required for installations, averaging over half a million dollars, limits the number of financial partners able to support such ventures. Tamturbo is exploring innovative financial models and modular, containerized solutions to simplify installation and broaden deployment. This helps address customer skepticism and distinguishes Tamturbo from industry leaders who have not adopted similar models.

Successful implementation of the " Touch-Free Air " service also requires dedicated personnel with expertise in ROI calculations and installation processes. While general sales teams can generate leads, specialized experts are needed for in-depth customer discussions and effective service management.

"The price is always individual or tailored to the customer application "
"Customers are more and more in favor of it."

Advice & recommendations

For institutions:

- Incentives for Producers: Encourage producers to adapt equipment for a service-based model rather than traditional sales. This shift can drive efficiency, innovation, and sustainability while fostering long-term customer relationships and providing financial incentives.
- Customer incentives: offer benefits such as tax relief for adopting service-based models. Highlight the quick return on investment for customers, with the expectation that they will contribute taxes once the benefits are realized.
- Information sharing and best practices: provide authorities with detailed information on the importance of service-based models and share best practices from companies already implementing these models. This approach can help shorten implementation times and improve overall adoption.

For companies:

- Be flexible and reactive : start with a pilot project to test and validate the service model. Practical implementation provides valuable insights and helps accelerate improvements to the product and business model.
- Build internal capability: develop internal systems and support mechanisms tailored to the new business model to ensure smooth operations and positive outcomes for both the company and its customers.

"We see significant potential with the technology to expand the air-as-a-service segment and move it beyond the initial concept"

TULU

TULU

Tulu provides a platform in residential buildings, student housing, offices, and hotels, allowing residents to rent items instead of buying them.
This service includes all kinds of products and their maintenance.
Partnering with landlords, Tulu offers this as an amenity, with a subscription model giving residents access to all products.

Website

Yael SHEMER
Co-founder

"People that are using Tulu don't end up buying products that will finally go to landfill."

Key figures

Target segment

Buildings landlord & residents
B2B2C

Perimeter

Active in 40 cities worldwide
(USA, UK & Europe)

Maturity & business size

Started in **2018**
50% with landlords &
50% directly with residents

Benefits

Access to high-quality items from great brands

Products conveniently located in your building

Regular maintenance and repairs provided

Type of contracts

Subscription **fee for the residents** (8 to 12$) a month
Fee/month for the landlord

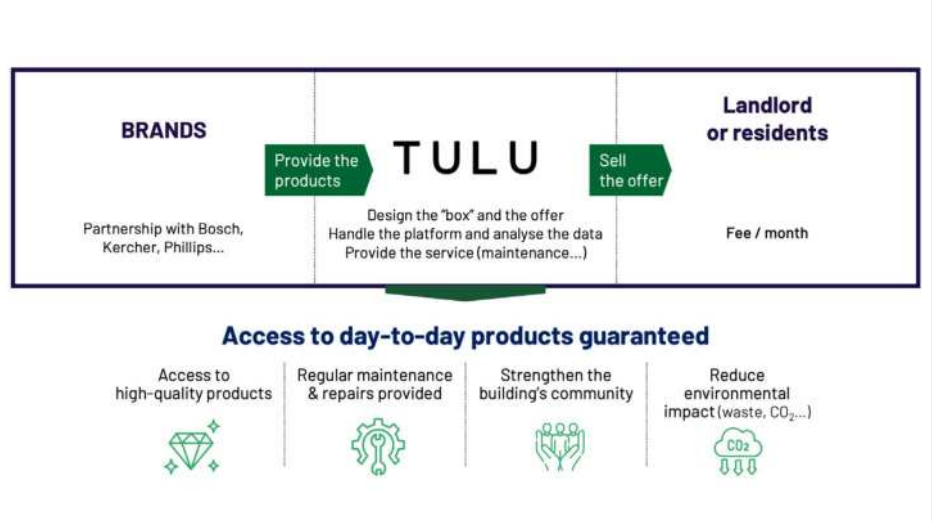
Pricing & Value

Price depending on building size and type of **resident**
(cheaper for students...)

Sustainable Impacts

Less products with higher usage intensity, leading to **reduction in waste** generation.
Lower carbon footprint (not measured yet)

TULU



Challenges & Orientations

Tulu was founded from a passion for minimalism and sustainability, starting in Tel Aviv, Israel, and now based in New York. Tulu's B2B2C model partners with landlords to integrate their services into buildings, offering a selection of items based on demographic research and resident feedback. Landlords pay an onboarding fee and a monthly fee, sharing revenue from resident subscriptions, which motivates them to promote Tulu actively. For residents, Tulu provides convenient access to a variety of items, from cleaning appliances to scooters, via a subscription model tailored to the building type and amenities offered.

Data is crucial for TULU, enabling both the development of future models and the improvement of their physical units. By integrating data, Tulu refines offerings and broadens impact. Data is used to enhance user engagement through personalization, smart marketing, and localization. But also to generate insights on operational effectiveness, pricing strategies, and consumer behavior.

Tulu is focused on scaling its operations to new buildings and locations efficiently. To achieve this target, the company is developing robust models to support growth, including effective onboarding processes and partnerships with companies for task fulfillment, ensuring smooth integration into the Tulu network.

Maintaining high user engagement is crucial, aiming for 30-40% of residents to use the service three times a month. Customizing units to balance general appeal with specific needs promotes higher engagement across diverse demographics.

Tulu also navigates cultural challenges, tailoring their approach to align with local values and preferences, which is essential for successful integration into diverse markets.

"We need to onboard the building correctly and to find different companies that can help us fulfill tasks"

"The data has a crucial role because we're also building the future models for this economy"

Advice & recommendations

For institutions:

- **Promote circular economy in real estate:** institutions should encourage real estate developments to integrate circular economy practices and sustainability in both new and existing buildings. This involves supporting interdisciplinary partnerships and exploring ways to enhance building sustainability through initiatives like shared consumption services.
- **Incentivize on-demand economy alternatives:** to mitigate environmental pressures from increased delivery services, cities should incentivize landlords to adopt in-building services like Tulu.

For companies:

- **Prioritize location:** ensure that your service or product is conveniently located where users need it most.
- **Focus on convenience:** design for ease of use, payment, and communication to enhance user experience, often more critical than the product itself.

" While Amazon and other delivery services increase environmental impact and road congestion, services within buildings can help mitigate this impact."

XARVIO-BASF

Xarvio Digital Farming Solutions is the digital farming subsidiary of the BASF Group, the world's leading chemical company. Xarvio develops innovative solutions for a more productive and sustainable agriculture, thanks to datas, digital technology and artificial intelligence. Through "Healthy field" offer, Xarvio sells hectares of healthy crops (wheat and barley) instead of fungicide canisters. Farmers subscribe to the service, register their field characteristics on the digital platform and receive very precise diseases risk management, including crop protection products if needed and a guarantee of results.

Video | Website

Webinar

Yohann BEREZIAT

Marketing & Business Development

"Digitally supported crop protection for your fields - from decision to implementation"

"We don't just promise. We guarantee."

"Cooperation and expertise are key on the whole value chain"

Key figures

Target segment

Farms looking for peace of mind and ready to delegate fungicide management

B2B

Perimeter

France & Germany

Maturity & business size

Offer created in **2020**, still under development

Fungicide market on cereals is evaluated between **€ 400 – 500 M** in France

Benefits

Peace of mind

Security

Saved time, better farming practices

More reliability for the planning and decision-making

Reduced environmental impact

Type of contracts

Price per hectare of crops / **Yearly subscription**

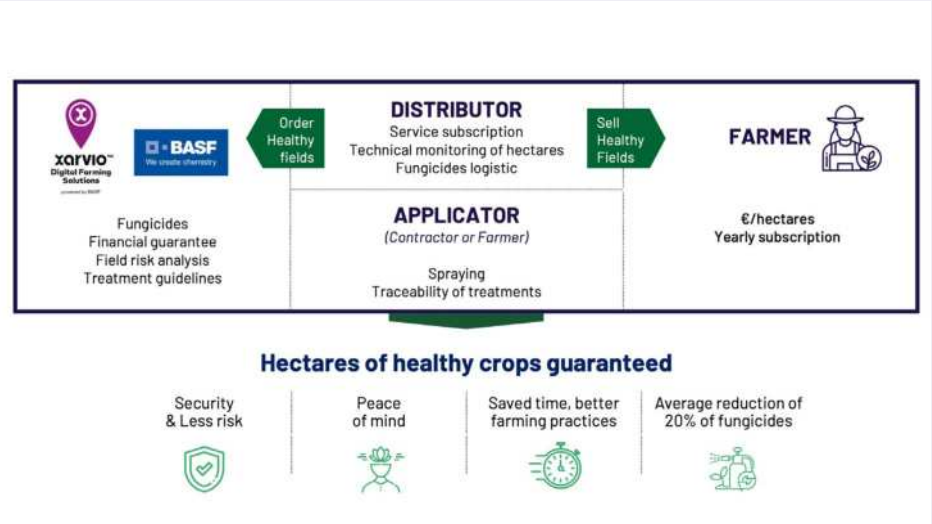
Pricing & Value

AdHoc pricing based on individualized audits of the fields

Risk-assessment approach integrating cost management

Sustainable Impacts

Reduction of fungicides use between 10% to 25%, compared to standard farmer practices in the same areas, on 2020-2023 period.



Challenges & Orientations

Xarvio is exploring a Product as a Service (PaaS) model to find a solution to the complete transformation of the environment: a fungicide market at risk due to a societal expectations and an increasing EU regulation. The " Farm to Fork " initiative is pushing to significantly reduce the use of crop protection product. Combined with Xarvio's technologies, such as smart sprayers, this business model shift ensures long-term sustainability and economic viability.

Data Management is key in implementing a PaaS model. Data is at the center of Xarvio's offer. All the algorithm are based on the data extracted on the fields. This helps the company to evaluate the risk. Agronomical data and recommendations are managed by the digital platform, but a few data islands remain manually handled. Work is ongoing to consolidate them into a global system for real-time analysis.

To drive this new business model, change management is essential. This shift requires changing mindsets and habits (among sales, marketing and management teams) from maximizing product sales to optimizing product usage. Xarvio Digital Farming and BASF decided to commercialize the offer through the existing crop protection productsales network,to promote the new service alongside fungicides. To support this decision, Xarvio has targeted specific distributors with compatible agroecological strategies and trained their sales teams on the new business model.

Cooperation requires fostering a collaborative mindset with distributors, transitioning from traditional fungicide negotiation to joint result production, which is dependent human factors, long-term partnership, clear roles and responsabilities.

BASF is self-financing this project. While this requires substantial time and investment covering risks independently is a necessity due to high insurance costs. exploring additional funding sources could be an option to further support this innovative business model, leveraging European funds,

Regulation is a significant challenge, particularly in France, where strict rules are designed for the crop protection market. The new paradigm in terms of crop protection as a service model introduces complexities that existing regulations don't fully address. While regulatory adaptation is needed, the ability to experiment within these constraints is crucial to develop new sustainable way to protect plants for farmers.

"The most important is moving to a mindset of cooperation with distributors, of producing results together."

"To explore such models, you have to change your habits and your way of thinking"

Advice & recommendations

For institutions:

Make it easier and faster to be able to experiment. more flexibility, more speed are needed to be able to experiment this new business model.

For companies:

- Work with some trusted partners : Cooperation is key.
- Make sure you monetize properly the benefits value.

CRITICAL ISSUES FOR PAAS MODELS:

Data, Finance & Value

— DATA: A CRITICAL ISSUE FOR PAAS MODELS —

As discussed in previous chapters the economic success of a Product as a Service (PaaS) offering hinges on the value provided to and perceived by the end user daily, as well as the provider's ability to effectively implement the service. Its environmental impact depends on the ability to eco-design the product, extend its lifespan to the maximum, and recycle it.

In these three areas—customer experience, operational control, and environmental impact—information technologies are essential for the adoption, deployment, and success of PaaS offerings.

Data and Customer Experience

Letting go of ownership of an asset is not an easy or insignificant change for a user. A frictionless interface where each interaction is simplified and optimized encourages users to adopt the service more quickly. The user experience plays a critical role in the social acceptance of new business models such as PaaS. Building a trusting and loyal relationship with customers and creating a service that offers real added value compared to ownership is thus a prerequisite for the success of the PaaS model.

By introducing the concept of a «System of Engagement,» which encompasses user interactions and experiences, Geoffrey Moore provides a tool to understand the importance of digital technologies in the success of such offerings. For instance, thanks to smartphones and connected vehicles, sharing the use of a car and charging for mobility services based on usage becomes possible. A robust information system provides an intuitive user interface and real-time functionalities essential for the rapid adoption of new services.

To date, the enhanced performance of «Systems of Engagement» has increased sales of physical products. The ecological imperative now requires leveraging these systems and artificial intelligence not to maximize profits from the linear model but to facilitate the transition to the PaaS model and make it acceptable for users: In the context of individual mobility «as a service,» only digital technology can create a user experience as seamless as stepping out of one's home and turning the key in their car. The same logic will be true for all PaaS offers.

Data and Customer Centricity

Continuing with the example of individual mobility " as-a-service ": for a shared vehicle, the information system tracks location, driving habits, reservation times, and traffic conditions. This data allows for price adjustments, maintenance planning, and the introduction of new features. Adapting the offer based on data ensures that the service meets each user's needs in terms of cost and perceived value.

Real-time data collection also allows for the quick identification of trends and user behaviours. For example, if data shows increased use of shared cars at certain times of the day, the company can adjust its offers and optimize vehicle availability accordingly. This flexibility improves operational efficiency and proactively meets customer needs.

By collecting and analyzing commercial data, interaction points, and usage data, it is now possible to have a real-time view of customers and their interactions with the service. Continuous measurement of customer satisfaction and early detection of attrition signs based on actual service usage trends are now feasible. This ability to anticipate potential departures (the "Churn" ratio) allows for proactive measures to maintain user loyalty or retain them with a more suitable offer. This practice is common in the telecom industry, where a decline in usage precedes customer defection to a competitor.

Data also enables the implementation of more advanced pricing models, including usage packages (e.g., 1000 km/month included for a car rental service) supplemented by pay-per-use fees (e.g., 20 € per vehicle being "unlocked"), or even a flat rate (e.g., 10 unlocks per month for a fixed fee).

Data and Eco Design

The same applies to the very design of products. In a PaaS model, the supplier's interest lies in ensuring the product offered lasts as long as possible, is reusable, and can be reconditioned. In-depth knowledge of usage data helps identify challenges throughout the product lifecycle. It is also necessary to design the next-generation products and improve their environmental impacts.

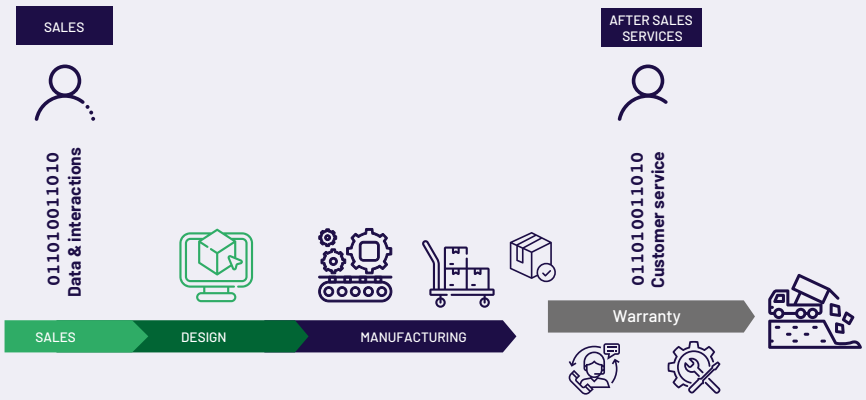
This is true for companies operating in the " Light-as-a-Service " sector, as discussed in the previous chapter. It is also true in the aerospace sector: continuous knowledge of real engine performance allows for the design of the next generation in a more sustainable manner. The same applies to consumer goods; for example, DARTY Max in France offers a ranking of the most reliable brands based on four indices: reliability, repairability, lifespan, and average parts cost. All these improvements are only possible through enhanced knowledge of the actual performance of objects during their usage phase, achieved through efficient data capture and analysis.

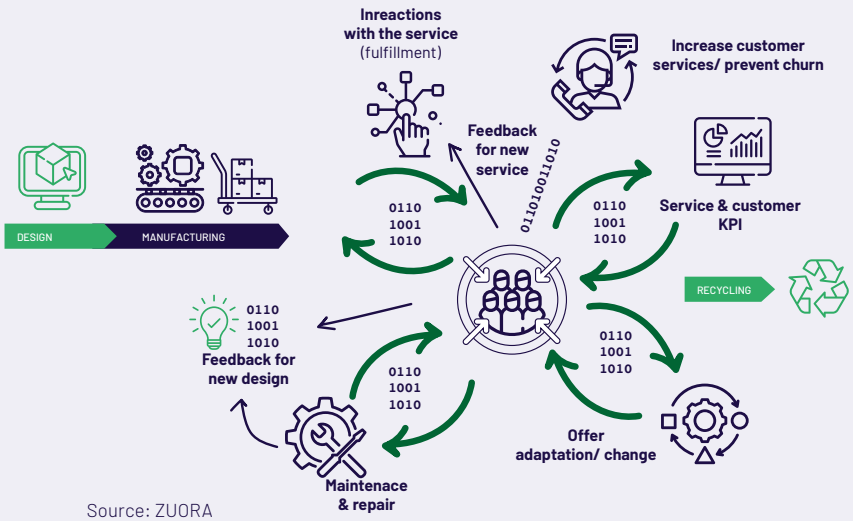
Data and Steering

Finally, the KPIs for managing a service offering differ from those for selling a standard product. Metrics are no longer focused on revenue or one-time profit but on customer-centered metrics and recurring interactions, such as MRR (Monthly Recurring Revenue), ARR (Annual Recurring Revenue), and ACV (Average Contract Value). These new indicators help better understand the value perceived by the customer and maximize the value captured by the service provider. In a usage-based economy, customers are no longer anonymous once the sale is made. They become an integral part of the offering and its evolution. As for the telecommunications sector, the average revenue per user (ARPU) is a key KPI for the company and its investors. Calculating it accurately and in real-time is a critical success factor for usage models.

Customer experience, customer centricity, eco-design, steering: Data is a vital enabler to PaaS model development. However, we also want to draw your attention to two important limitations: the cost of implementing data in the offer can be significant, and lifecycle analyses of PaaS offerings must absolutely consider the environmental cost of data in the offers. Both must be considered when exploring PaaS models success and impact.

Stéphane Dierick





Source: ZUORA

— FINANCE & VALUE —

Adopting or implementing a new circular business model (CBM) in the form of a PaaS presents significant organizational financial challenges for all companies, be they start-ups or large corporations. Financing the asset is indeed a question which is very often asked in the very first place. We nevertheless believe four key areas should be considered: cash generation, asset financing, steering and accounting, risk assessment, along with the valorization of externalities.

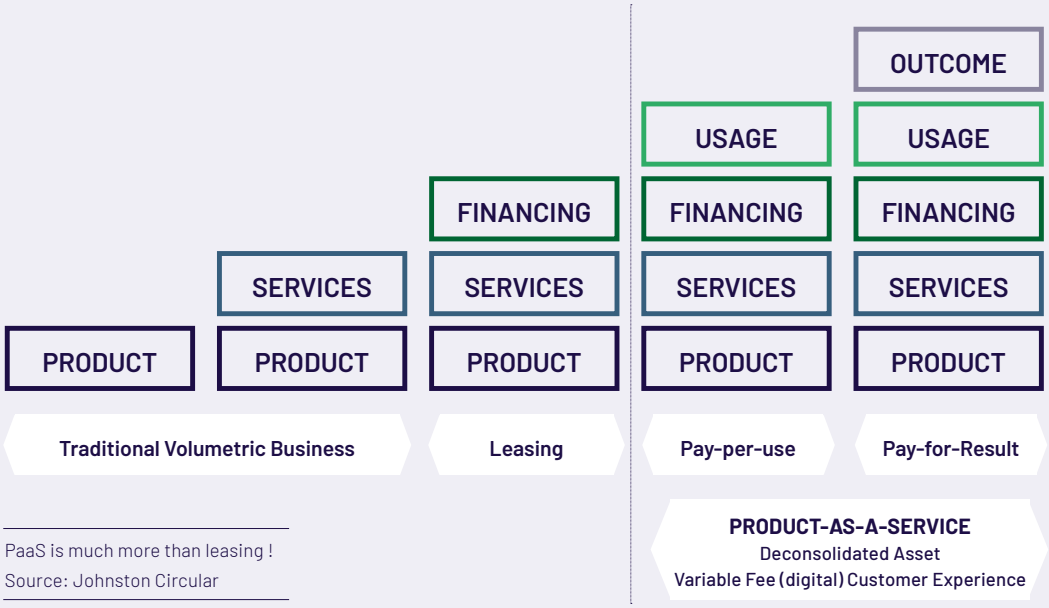
First things first: cash generation

The first question to consider when evaluating a new business model is what value customers are willing to pay for, and how to monetize it. PaaS models are no exception to this rule. As demonstrated in the exploration of different use cases, it is essential that the end customers are ready to pay for the value of the service they receive. In a PaaS offering, the value lies in the service. There cannot be a PaaS without a service dimension.

Example: When transporters opt for "Tire as a Service" they value and agree to pay for "peace of mind", environmental impact, safety for their drivers, and ease of operations, beyond the mere value of the tire product.

The sole benefit of paying for an asset in installments is not enough to justify a PaaS model: PaaS is not leasing. Leasing is a financing solution, while PaaS brings significant additional value, which needs to be fully extracted in the process of customers' pains and gains exploration.

Difference between PaaS and Leasing :



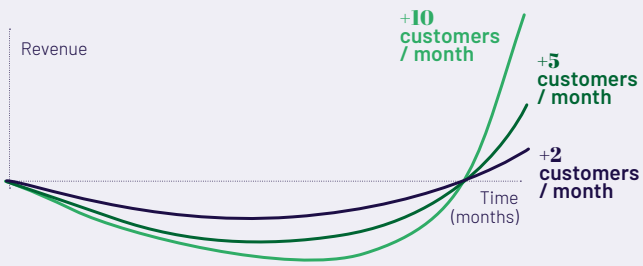
PaaS is much more than leasing !
Source: Johnston Circular

Moving from the traditional linear model of take-make-waste to a circular model of make-use-reuse-remake-recycle, means that the firm creates value-in-use rather than in transaction. Value comes from bundling its products with advanced services to allow the products to be shared, repaired, reformed (upgraded), reused, refurbished, remanufactured, and eventually recycled[1]. Consequently, profitability of PaaS models comes from controlling the cost of services and operations.

A simplified PaaS P&L structure:

Revenues from invoicing
- cost of products
- cost of services & digital tools
- cost of financing
= Earnings

Finally, there is the issue of revenue timing. While PaaS models allow for the transformation of one-off sales transactions into long-term relationships with recurring revenues, they impact financing by extending cash flow generation over time.

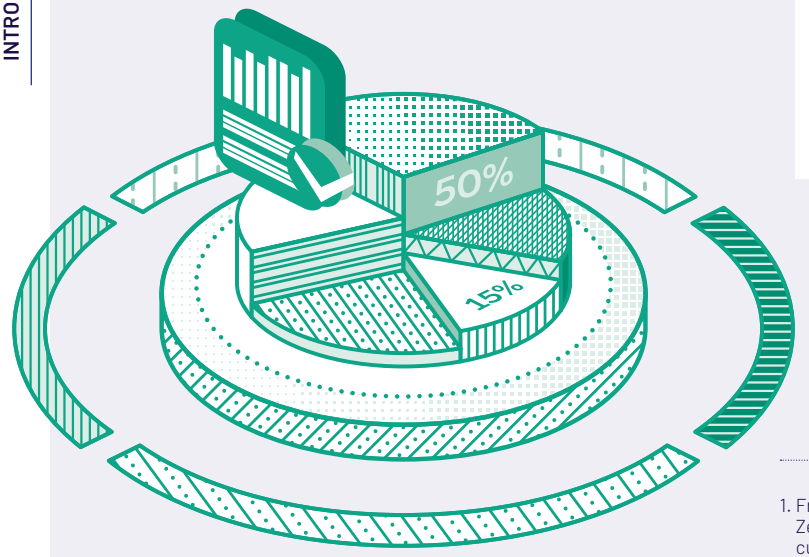


Distributed revenues accumulate over time for PaaS providers.

Source: Sustainable Finance Lab "Money Makes the world go Around" report.

Recommendations:

- Implement value based pricing – it is crucial
- Control the operations – this aspect is often disregarded by product centric companies, but it's a major lever to survival of PaaS providers
- Secure financing that will match distributed revenues and a growing business in a timely manner



1. Frishammar & Parida, quoted in Fallahi, S., Mellquist, A., Mogren, O., Zec, E. L., Algurén, P., & Hallquist, L. (2022). Financing solutions for circular business models: Exploring the role of business ecosystems and artificial intelligence. Business Strategy and the Environment, 32(6), 3233-3248.

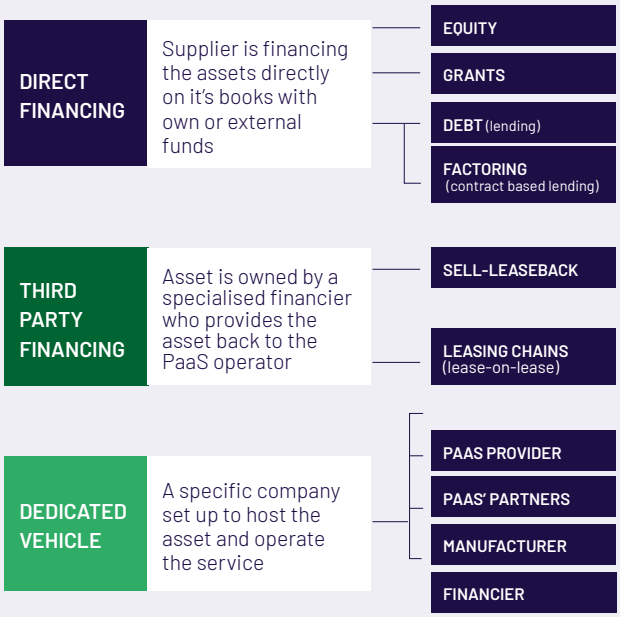
Financing the Assets

PaaS models provide much appreciated asset-light solutions to the end-users. As a result, they entail integrating them into the supplier's balance sheet, therefore generating a financing cost. That takes us back to the first paragraph - «Cash generation»:: the cost of financing the asset must be integrated into your price.

" CapEx is a big stumbling block for a lot of companies. We used to have no assets on our balance sheet. Now we have millions of dollars with assets you have to manage. But green money is kind of abundant. So I think you can overcome that challenge."

Kaer interview – *July 2024*

Companies have essentially 3 paths to finance the asset laying at the core of their PaaS offering:



Paths to PaaS financing.
Source: Johnston Circular

Direct financing can be an effective choice for testing and piloting a new offer on a small scale, allowing for gradual diversification and internal funding arrangements. In the early stages, equity or venture capital, as well as government-backed financing, tend to be more effective options2.

When scaling up, it is crucial to have specific and dedicated financing in place. While debt is often the natural choice, it is dependent on strong credit standing and a positive risk assessment (as discussed in last section on risk assessment). In some cases, third-party financing may align with the business model's requirements. However, we prefer using a dedicated vehicle, such as a Special Purpose Vehicle (SPV). This approach offers two significant advantages: it creates a financing structure specifically tailored to the business model and operates within a legal framework that includes essential financial steering tools for PaaS operations (discussed in the next section). Moreover, it provides an opportunity to engage value chain partners in the vehicle's design.

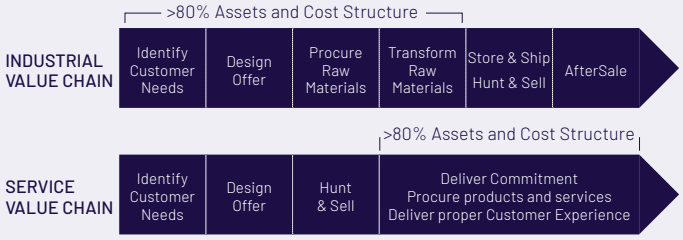
Recommendations:

- Make sure you cover the cost of financing in your pricing
- Consider grant or own financing while testing and deploying PaaS gradually
- An SPV is a good way to go when scaling-up PaaS offering (see the next section)

2.Aranda-Usón et al. & Demirel and Danisman quoted in Linder, M., Mellquist, A.-C., Vanacore, E., Hallquist, L., & Whalen, K. (2023). Financing Circular Business models: The challenges of obtaining bank credit for product-as-a-service models. RISE Research Institutes of Sweden..

The accounting challenge

A service business model relies on a value chain that is significantly different from a product value chain:



Source: Johnston Circular

These value chains structure the entire organization, job descriptions and financial processes. Shifting from a product value chain to a service value chain represents a significant change affecting the whole company. It is therefore a challenge to operate a PaaS model at scale within the same legal structure as the linear business and using the same KPIs as for a traditional linear offer.

Our PACCT webinars and interviews attest to the fact that in a PaaS activity, what matters is the service level, customer satisfaction, capacity to run smooth operations, to retain customers and optimize profitability per contract.

	Linear Business Model KPIs	PasS Business Model KPIs
Business	Product Volume, Share of Market, product profitability	Contract Profitability Cost of operations and services, Churn
Quality	Once or Twice a year : Customer Satisfaction : NPS, CES (once a year)	Daily monitoring: • Customer satisfaction • Customer claims management • Customer Success
Sustainability	Scope 1,2 is covering production – Scope 3 covers upstream (purchase) and downstream (usage) with less levers	Downstream usage phase is a key component of PaaS's sustainability impact, and becomes scope 1 for the supplier. It is "shared" with customers.

Difference in KPIs of linear and PaaS business models. Source: Johnston Circular.

Example of PaaS KPI: A potential KPI can be the so-called LTV/CAC ratio (Lifetime Value/ Customer Acquisition Cost) which speculates on the profitability of future customers. If the ratio is positive, the company theoretically becomes richer the more it grows. For the financier, the risk should be reasonable if the ratio is positive, and even smaller if the company can ongoingly repay the capital plus interest, based on future income[3].

The asset-based DNA of PaaS models results in challenges using traditional accounting. Whereas the rationale of value generation in a circular business model revolves around assets holding their value between uses, depreciation towards zero value is forced even though assets could still generate revenue[4]. This can be a strong impediment in the first years of the business, and ideally suppliers would need to extend the amortization period, to reflect the real nature of the asset.

Furthermore, VAT, IFRS regulations, custom duties,... are all built for a linear economy and hardly recognize circular businesses' features. A few examples:

- it can be a real difficulty to move used products from one country to the other, for them to be refurbished, or reused, when logistics should be seamless to facilitate sustainable products circulation,
- under current operating modes, VAT will apply each time the product is reconditioned, adding an extra cost to the model[5].
- IFRS15 and IFRS16 standards reflect the traditional linear approach to business and therefore require expertise when implementing to circular business models.

Recommendations:

- For regulators: Accounting and fiscal rules must take circularity and PaaS into account. We fully support UN's recommendations when it comes to financing circularity.
- For companies: Ensure you have configured steering tools specific to your PaaS model. KPIs, dashboard, decision process should be adapted to the new business model you're scaling.

3. & 4. Fallahi, S., Mellquist, A., Mogren, O., Zec, E. L., Algurén, P., & Hallquist, L. (2022). Financing solutions for circular business models: Exploring the role of business ecosystems and artificial intelligence. Business Strategy and the Environment, 32(6), 3233-3248.

5. European Circular Economy Stakeholder Platform Coordination Group: 2021 Circular Taxation Reflection Paper

Financiers' perspective: risk assessment and the power of valorizing externalities

Many reports and the interviews we conducted confirm that financial institutions express a growing interest in funding new circular economy. However, when it comes to evaluating PaaS business models, they tend to apply traditional risk assessment procedures and struggle with a thorough understanding of such models' dynamics[6/7]. -Despite the challenges, the change is coming. Niche financiers are growing their expertise and portfolios of as-a-Service transactions, and often become industry experts[8]. Concurrently, novel approaches are enabling PaaS funding. One such example is the publicly available Circular Risk Scorecard, which was created by experts working in a group called Kopgroep Circulair Financieren[9]. It is a 6-indicators model enabling assessment and selection of circular transactions and is gradually adopted by banks worldwide.

«There's not so much innovative " circular financing instrument development" happening. It's more about using one's creativity to leverage the existing financial instruments for supporting innovative business models.»

Tomas Zimmerman, *Swedbank*

Another opportunity arises with a growing evidence of PaaS's capacity to lower environmental burdens, ranging to 80-90% of GHG emissions reduction through different types of PaaS . One more analysis shows that PaaS models reduce CO2 emissions by up to 65% while also providing more economic value - up to a 39% reduction in total cost of ownership (TCO).

These analyses are promising, but further research is needed to enhance our understanding of the environmental impact of PaaS business models. Nevertheless, financing circular activities becomes one of the most common claims about banks' opportunities to de-risk their portfolios.

A recent publication from UN EP - Finance Initiative gives a clear guidance for financial institutions to integrate circular economy principles in their lending and investment decisions. Benefitting from reduced exposure to resource scarcity, supply chain interruptions, and price volatility brings long-term resilience boost for both financiers and new models' operators as PaaS. By transferring assets from linear portfolios that gradually become stranded to new circular portfolios financiers may better align with environmental, social, and governance (ESG) standards and get ready for sustainable finance principles[12].

Such evidence coupled with a growing expectation for financial sector to lead the circular transformation allows to build a solid platform for financiers and PaaS providers and to strengthen their relationships on the ground of shared financial and sustainable goals.

6. Linder, M. (2023). PRODUCT-AS-A-SERVICE IN THE CIRCULAR ECONOMY: The nine critical challenges and how to fix them. Stena Circular Consulting
7. Linder, M., Mellquist, A.-C., Vanacore, E., Hallquist, L., & Whalen, K. (2023). Financing Circular Business models: The challenges of obtaining bank credit for product-as-a-service models. RISE Research Institutes of Sweden.
8. Fallahi, S., Mellquist, A., Mogren, O., Zec, E. L., Algurén, P., & Hallquist, L. (2022). Financing solutions for circular business models: Exploring the role of business ecosystems and artificial intelligence. Business Strategy and the Environment, 32(6), 3233–3248.
9. Circular Finance through the Circular Risk Scorecard (dnb.nl)
10. Sarasini, S., Bocken, N., Diener, D., Velter, M., & Whalen, K. (2024). Reviewing the climatic impacts of product service systems: Implications for research and practice. Journal of Cleaner Production, 452, 142119.
11. Systemiq. (2022). Everything-as-a-service XaaS: How businesses can thrive in the age of climate change and digitalization.
12. UNEP-FI, Circular Economy as an Enabler for Responsible Banking: Leveraging the Nexus between Circularity and Sustainability Impact Circular Economy as an Enabler for Responsible Banking: Leveraging the Nexus between Circularity and Sustainability Impact – United Nations Environment – Finance Initiative (unepfi.org)

The transition to a Product-as-a-Service (PaaS) model is a significant shift from traditional business approaches, presenting both opportunities and challenges. Companies adopting PaaS must navigate complex issues such as asset financing, cash flow management, and adapting circular models to existing linear accounting standards. However, many of these challenges can be addressed through proven practices and tailored solutions. Simultaneously, the promising business outcomes and positive environmental impacts, coupled with the growing expectation for the financial sector to lead the circular transformation, create a strong foundation for collaboration between PaaS providers, their customers, and financiers. Strengthening these relationships based on shared financial and sustainability goals can be a powerful driver of PaaS adoption, ultimately leading to a more resilient economy and a thriving planet.

Green Deal:

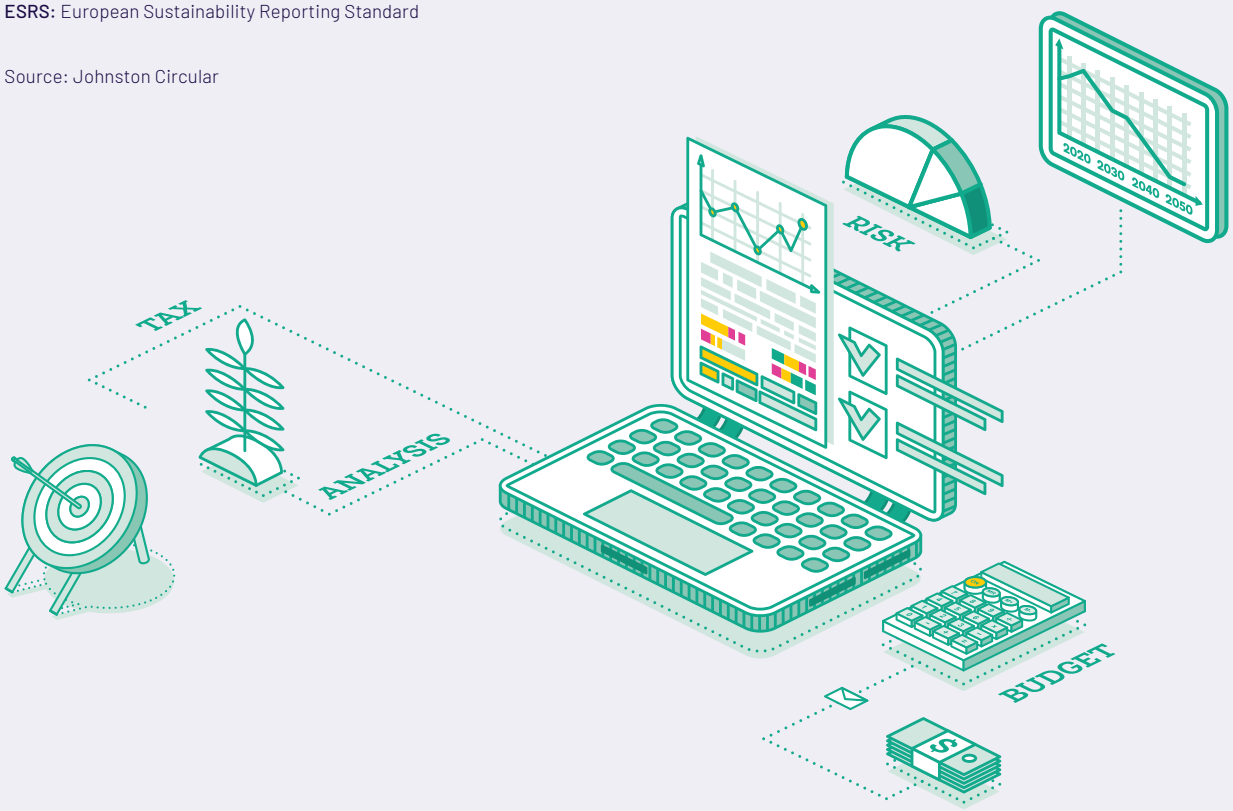
PaaS is strongly supported by new EU regulations as a lever to accelerate circularity

PAAS Product As A Service explicitely mentioned in the text

CSRD: Corporate Sustainability Reporting Directive (CSRD) requires companies to report on the impact of corporate activities on the environment and society, and requires the audit (assurance) of reported information

ESRS: European Sustainability Reporting Standard

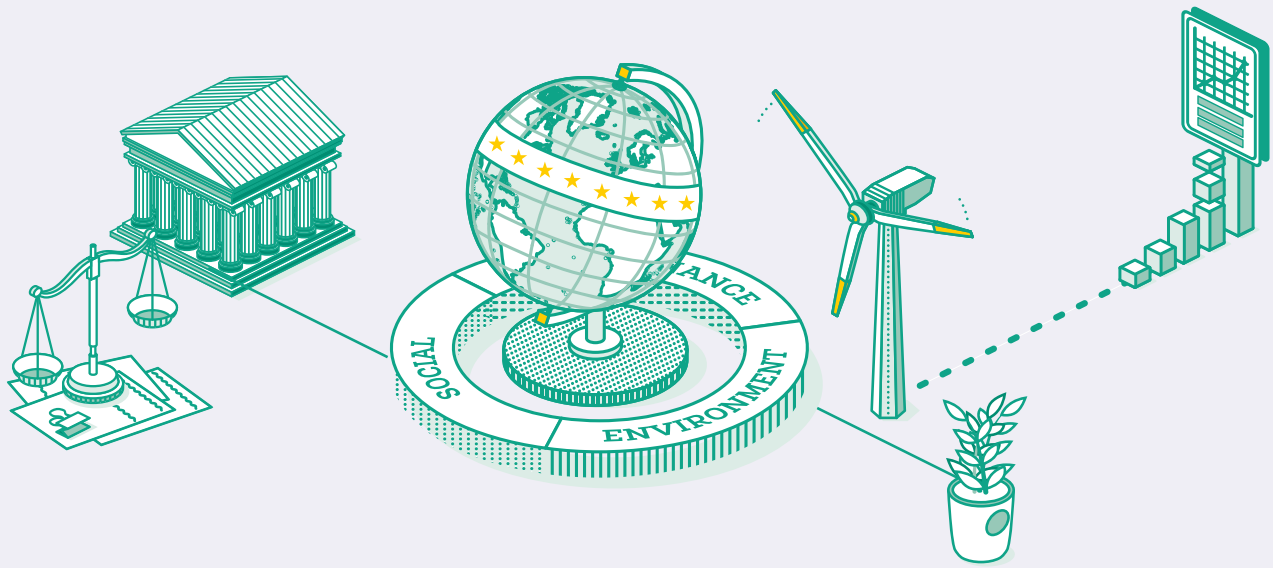
Source: Johnston Circular



The **GREEN DEAL**, adopted by the EU Commission in December 2019, engages the EU on the path to becoming the first climate neutral continent by 2050. This legally binding pact details their long-held ambitions to limit environmental damage while staying economically viable, and a vast amount of actions have been undertaken to achieve them. The EU has notably adopted a series of Action Plans, including the New Circular Economy Action Plan (2020) and the **Action Plan on Sustainable Finance (2018)**, which are meant to target different levers. These documents outline the EU's goals and strategy for the subject at hand, while specifying the legal and financial tools used to enact it. While the objectives stated in them are not legally binding for the Union, allowing them to set optimistic targets, the means to reach them are either already in effect or actively being implemented. This means companies should not see them as mere political promises, but as guides to anticipate future EU legislation and investments, and reminders of their existing legal obligations and funding opportunities.

Among them, we have the Action Plan on Sustainable Finance (2018), whose goal is to **"support the reorientation of private investments towards more sustainable technologies and businesses and finance growth in a sustainable manner over the long term."** This text officially introduces the project of an official classification system for economic activities that we will explain later in this chapter, the EU Taxonomy.

We also have the New Circular Economy Action Plan (2020), which outlines new objectives **for 7 sectors of the economy and explains what regulatory tools and investment funds will be used to reach them**:

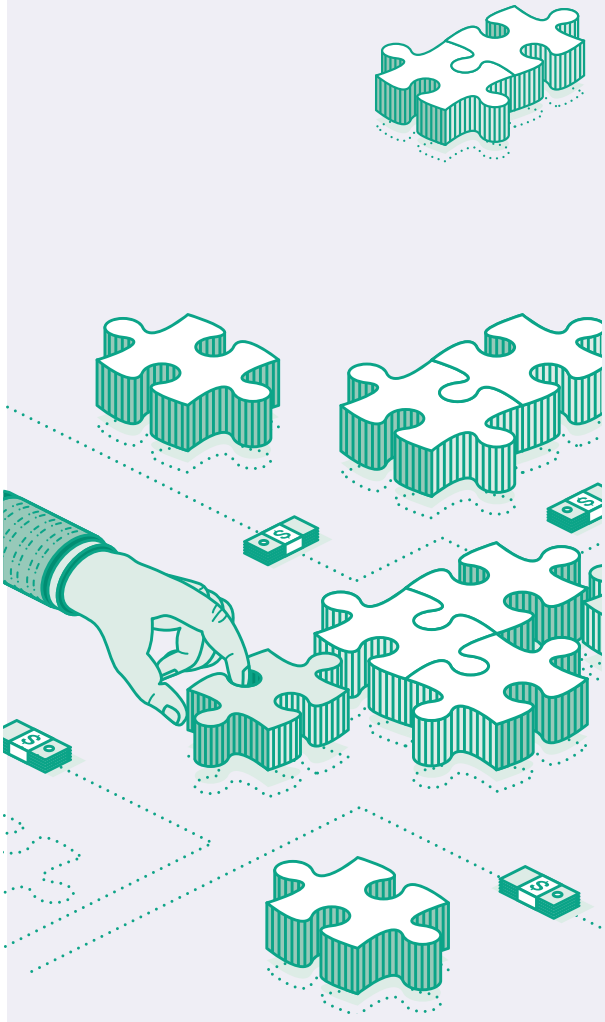


How the Action Plans adopted by the European Commission incorporate Product-as-a-Service and new circular business models

NEW CIRCULAR ECONOMY ACTION PLAN:
comprehensive strategy and goals for 7 strategic sectors of the economy, with PaaS etched into it

The New Circular Economy Action Plan lays out a strategy to reform the following **7 sectors**:

- Plastic / Packaging
- Transport & Batteries
- Construction & Buildings
- Water
- Food & Nutrients
- Textile
- Electronics & ICT (Information and Com. Technologies)



In a nutshell, the main objectives consist in leading these sectors to use as little toxic materials/intrants as possible, designing products to be safe for human consumption and the planet, durable, repairable, and recyclable. For the already existing products and future production, a waste management strategy was elaborated. The three main points are to research and implement toxic waste management solutions, to create a thriving EU market for secondary raw material, and to tackle European waste exports and environmental crimes. The Action Plan then outlines a global strategy to push for a circular economy through trade agreements, diplomacy, common regulatory tools and cooperation, notably in the Global Circular Economy Alliance (GRACERE). This is accompanied by crosscutting actions to support the transition, with significant investments in innovation and R&D, the EU setting up billions in funds across many different programs to fuel change in public and private actors alike. The EU Taxonomy is cited as one of the tools that will lead to **"getting the economics rights"** for the circular economy.

In the New Circular Economy Action Plan, PaaS is directly cited in the following contexts:

> *"For citizens, the circular economy will provide high-quality, functional and safe products, which are efficient and affordable, last longer and are designed for reuse, repair, and high-quality recycling. A whole new range of sustainable services, Product-as-a-Service models and digital solutions will bring about a better quality of life, innovative jobs and upgraded knowledge and skills."*

About sustainable product design:

"As part of this legislative initiative, and, where appropriate, through complementary legislative proposals, the Commission will consider establishing sustainability principles and other appropriate ways to regulate the following aspects: [...] incentivising Product-as-a-Service or other models where producers keep the ownership of the product or the responsibility for its performance throughout its lifecycle;"

About batteries and vehicles:

"From a broader perspective, the forthcoming Comprehensive European Strategy on Sustainable and Smart Mobility will look into enhancing synergies with the circular economy transition, in particular by applying Product-as-a-Service solutions to reduce virgin material consumption, use sustainable alternative transport fuels, optimise infrastructure and vehicle use, increase occupancy rates and load factors, and eliminate waste and pollution."

About textiles:

"The strategy will aim at strengthening industrial competitiveness and innovation in the sector, boosting the EU market for sustainable and circular textiles, including the market for textile reuse, addressing fast fashion and driving new business models. This will be achieved by a comprehensive set of measures, including: [...] improving the business and regulatory environment for sustainable and circular textiles in the EU, in particular by providing incentives and support to product-as-service models, circular materials and production processes, and increasing transparency through international cooperation;" [1]

Action Plan for Sustainable Finance: reinventing the finance sector to change the economy for the better, and incentivizing Product-as-a-Service

The Action Plan for Sustainable Finance seeks to " Re-orient Capital Flows towards Sustainable Investments. " To achieve this, the EU created and uses regulatory and investment tools to shift investors and corporations' priorities: from profitable but unsustainable activities and leadership, characterized by short-termism, to an environmentally and socially sustainable direction. The main tools cited by this Action Plan are the Green Bond Standard, the equivalent of an Ecolabel for bonds to make the sustainable ones stand out and the elaboration of environmental, social and governance (ESG) benchmarks that investors can use to track performance and allocate assets as needed. The most relevant initiative to this white paper, however, is the introduction of the Taxonomy Regulation and the subsequent non-financial reporting obligations for companies (detailed in the CSRD).

In the Action Plan for Sustainable Finance, while product-service systems is not directly mentioned, the necessity to reform and strengthen business models is:

- "[...] **to strengthen business models** and to improve performance."
- "[...] Other environmental issues are increasingly acknowledged to **threaten current business models.**" [2]

1. European Commission. Communication From The Commission To The European Parliament, The Council, The European Economic and Social Committee and The Committee of The Regions a New Circular Economy Action Plan for A Cleaner And More Competitive Europe, Com/2020/98 Final. Adopted 11/03/2020.
2. European Commission. Communication From The Commission To The European Parliament, The European Council, The Council, The European Central Bank, The European Economic and Social Committee And The Committee Of The Regions Action Plan: Financing Sustainable Growth, Com/2018/097 Final. Adopted 08/03/2018.

The EU Taxonomy, a key tool for the circular economy, and how it incentivizes Product-as-a-Service

Definition, objectives, criteria[3]

What the EU Taxonomy is	What the EU Taxonomy is not
A classification system to establish clear definitions of what is an environnentally sustainable economic activity	A mandatory list to invest in
Tool to help investors and companies to make informed investment decisions on environmentally sustainable activities for the purpose of determining the degree of sustainability of an investment	A rating of the **" greenness "** of companies
Reflecting technological and policy developments: The Taxonomy will be updated regulary	It does not make any judgement on the financial performance of an investment
Facilitating transition of polluting sectors	What's not green is not necessarily brown. Activities that are not on the list, are not necessarily polluting activities. The focus is simply on activities that contribute substantially to environmental objectives.
Technology neutral	
Fostering Tranparency by disclosures for financial market participants and large companies related to the Taxonomy	

A major tool introduced in the Action Plan on Sustainable Finance is the EU Taxonomy Regulation adopted in July 2020. It establishes a **"common language"** between the EU's institutions and investors regarding what constitutes sustainable activities. This common language takes the form of the Taxonomy, a classification system that allows anyone to see if a business/activity contributes to 1 or more of the **6 EU Environmental objectives**, and to what extent. They are:

01 **Climate** change **mitigation**

02 **Climate** change **adaptation**

03 **Sustainable use** & **protection** of water & marine resources

Transition to a circular economy 04

Pollution prevention & control 05

06 **Protection and restoration** of biodiversity and ecosystems

NOTE

The delegated acts are additional, legally binding pieces of legislation that are added to the main piece of legislation to add or clarify the obligations of different actors.

The Taxonomy Regulation also sets out **4 overarching conditions** that an economic activity must meet in order to qualify as environmentally sustainable:

- Making a substantial contribution to at least one environmental objective;
- Doing no significant harm to any of the other five environmental objectives;
- Complying with minimum safeguards; and,
- Complying with the technical screening criteria set out in the Taxonomy delegated acts. [...][4]

3 et 4. European Commission. "EU Taxonomy Compass." European Commission, ec.

The activities in the Taxonomy are separated into three categories:

- Own performance activity refers to an economic activity that significantly contributes to environmental sustainability goals through its own performance.

- An enabling activity directly enables other activities to make substantial contributions toward one or more of the six environmental objectives outlined in the EU Taxonomy, listed above. This activity must ensure it does not create dependencies on assets that are detrimental to long-term environmental goals throughout their lifespan. It should also have a significant positive environmental impact regarding their assets/products' lifecycle.

- A Transitional Activity can be deemed as making a substantial contribution to the environmental objective of climate change mitigation under the following conditions:

  - It lacks viable low-carbon alternatives.
  - It contributes to the transition toward a climate-neutral economy and to limiting temperature increase to 1.5°C above pre-industrial levels.
  - It emits levels of greenhouse gas that are the lowest within their sector or industry.
  - It does not oppose or compete against low-carbon alternatives.
  - It does not create dependencies on assets that are incompatible with the goal of climate neutrality over their economic lifespan.

OBJECTIVES OF THE TAXONOMY

- The Taxonomy Regulation is expected to foster sustainable investments in activities that contribute to the six environmental goals mentioned above, and thus the European Green Deal's objectives, by providing a clear and transparent classification system for them.
- It is meant to combat greenwashing and harmonize what investors classify as green, since only activities that meet the strict criteria of the Taxonomy can advertise themselves as environmentally sustainable.
- Companies can use the Taxonomy criteria and the corresponding reporting requirements to plan and finance their ecological transition, allocating resources where it is needed.

PaaS-model businesses are recognized in the Taxonomy as a category of services

Product-as-a-Service business models are a category of sustainable services found in the EU Taxonomy. It is defined as such:

Product-as-a-Service and other circular use and result-oriented service models

Providing customers (physical person or legal person) with access to products through service models, which are either use-oriented services, where the product is still central, but its ownership remains with the provider and the product is leased, shared, rented or pooled; or result-oriented, where the payment is pre-defined and the agreed result (i.e. pay per service unit) is delivered."[5]

Nearly every sector is included in the definition, as any activity contained in the following list of NACE codes is mentioned in this category:

The economic activity covers products that are manufactured by economic activities classified under the NACE codes

C13	Manufacture of textiles,
C14	Manufacture of wearing apparel,
C15	Manufacture of leather and related products,
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials,
C22	Manufacture of rubber and plastic products,
C23.3	Manufacture of clay building materials,
C23.4	Manufacture of other porcelain and ceramic products,
C25.1	Manufacture of structural metal products,
C25.2	Manufacture of tanks, reservoirs and containers of metal,
C25.7	Manufacture of cutlery, tools and general hardware,
C25.9	Manufacture of other fabricated metal products,
C26	Manufacture of computer, electronic and optical products,
C27	Manufacture of electrical equipment,
C28.22	Manufacture of lifting and handling equipment,
C28.23	Manufacture of office machinery and equipment (except computers and peripheral equipment),
C28.24	Manufacture of power-driven hand tools,
C28.25	Manufacture of non-domestic cooling and ventilation equipment,
C28.93	Manufacture of machinery for food, beverage and tobacco processing, excluding machinery for tobacco processing,
C28.94	Manufacture of machinery for textile, apparel and leather production,
C28.95	Manufacture of machinery for paper and paperboard production,
C28.96	Manufacture of plastic and rubber machinery,
C31	Manufacture of furniture
C32	Other manufacturing

The economic activities in this category could be associated with several **NACE codes, in particular G46, G47, and N.77** in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.

5."EU Taxonomy Navigator." European Commission - European Commission, ec.

Legally binding obligations for companies to follow

REPORTING OBLIGATIONS, STANDARDS AND ACTORS: CSRD AND ESRS

1st January
(1st reporting in 2025)

Companies already subject to the non-financial disclosure directive in force since 2018: companies of more than 500 employees and over €40 M in sales
(and/or over €20 M in balance sheet total)

2024

1st January
(1st reporting in 2026)

Companies of more than 250 employees and over €40 M in sales
(and/or over €20 M in balance sheet total)

2025

1st January
(1st reporting in 2027)

Listed SMEs
(except micro-companies: companies with less than 10 employees whose balance sheet total does not exceed €350,000 or whose net turnover does not exceed €700,000)

2026

1st January
(1st reporting in 2028)

Non-EU companies with EU large or listed subsidiaries or an EU branch

2027

The Taxonomy relies on data that must be communicated by the companies themselves in an annual sustainability report, which goes along with their management report. In France, this can be conveniently done through an online portal on an official government website. While companies may disclose their information/data for the Taxonomy on a voluntary basis (to get access to sustainable funding or other business-related reasons), companies that fall under the Corporate Sustainability Reporting Directive (CSRD), previously known as the Non-Financial Reporting Directive (NFRD) until January 2023, have a mandatory obligation to disclose how their activities and investments align with the criteria set out by the Taxonomy. There will be 50 000 of them in 2028 as the CSRD is progressively implemented, encompassing all large companies and all companies with securities listed on EU regulated market (except micro-companies).

The CSRD also set the groundwork for the adoption of detailed and comprehensive European Sustainability Reporting Standards (ESRS) for companies to follow in their annual sustainability report. The first set of ESRS was adopted on July 31st, 2023, as a Delegated Act (legally binding amendment). They consist of 1178 data points, split into 4 categories: General, Governance, Social and Environment. Companies only have an obligation to report on 82 of them, and they are referred to as Disclosure Requirements in the legislation.

6. "EU Taxonomy Navigator." European Commission - European Commission. Accessed 13 Feb. 2024.

7. "Portail RSE" . Accessed 13 Feb. 2024.

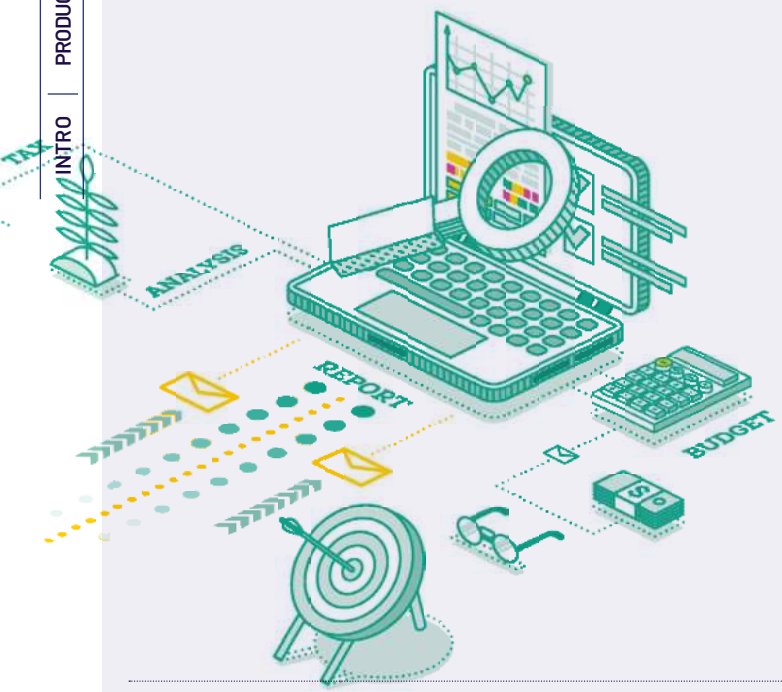
The European Sustainability Reporting Standards

General

ESRS 2 General disclosures		ESRS 1 General principles
SOCIAL 32	ENVIRONMENT 32	GOVERNANCE 6
ESRS S1 Own workforce 17	ESRS E1 Climate change 9	ESRS G1 Business conduct 6
ESRS S2 Workers in the value chain 5	ESRS E2 Pollution 6	
ESRS S3 Affected communities 5	ESRS E3 Water & marine resources 5	
ESRS S4 Consumers & end users 5	ESRS E4 Biodiversity & ecosystems 6	
	ESRS E5 Resource use & circular economy 6	

00 Number of disclosure requirements

Product-as-a-service mentioned



As for any legally binding reporting obligation, the EU plans to make assurance from a third party, independent auditor mandatory for companies' sustainability reports from 2025 onwards (for 2024 year-end reports). As of the writing of this paper, the European Commission is expected to adopt the first delegated acts meant to clarify the assurance standards (in cooperation with statutory auditors and independent assurance services providers) by October 1st, 2026. [8]

8. "FAQs: All You Need to Know about the Corporate Sustainability Reporting Directive." Accountancy Europe, 3 Mar. 2023. Accessed 13 Feb. 2024.

PAAS MODEL IN THE ESRS IS RECOGNIZED AS A MARKET OPPORTUNITY TO ASSESS FOR COMPANIES, AND AS A "CIRCULAR BUSINESS PRACTICE" THAT ENABLES VALUE MAXIMIZATION (BOTH ARE REQUIRED TO DISCLOSE IN A COMPANY'S SUSTAINABILITY REPORT)

Product-as-a-Service or "Product-Service-Systems" is part of the official ESRS disclosure requirements not once, but twice over in different categories.

It can be found in the ESRS 2 (General disclosures) category as a "disclosure requirement related to ESRS 2 IRO-1" as a market opportunity to be assessed and managed:

"II. markets: e.g., demand for less resource-intense products and services, and new consumption models such as product-as- a-service, pay-per-use, sharing, leasing;"

It is also in the Disclosure Requirement E5-2 (Environment category) in "Actions and resources related to resource use and circular economy" as a value maximization action: "application of circular business practices such as (I) value retention actions (maintenance, repair, refurbishing, remanufacturing, component harvesting, upgrading and reverse logistics, closed loop systems, second-hand retailing), **(II) value maximisation actions (product-service systems, collaborative and sharing economy business models)**, (III) end-of-life actions (recycling, upcycling, extended producer responsibility), and (IV) systems efficiency actions (industrial symbiosis)[9];"

SANCTIONS IN CASE OF VIOLATION OF THE CSRD VARY BY COUNTRY

According to the CSRD:

1. Member States shall ensure that there are effective systems of investigations and sanctions to detect, correct and prevent inadequate execution of the statutory audit and the assurance of sustainability reporting.
2. Without prejudice to their civil liability regimes, Member States shall provide for effective, proportionate and dissuasive sanctions in respect of statutory auditors and audit firms, where statutory audits or assurance of sustainability reporting are not carried out in conformity with the provisions adopted in the implementation of this Directive, and, where applicable, with Regulation (EU) No 537/2014.

Member States may decide not to lay down rules for administrative sanctions for infringements which are already subject to national criminal law. In that event, they shall communicate to the Commission the relevant criminal law provisions[10].

9. OJ L, 2023/2772, 22.12.2023, Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards, ELI

10. OJ L 322, 16.12.2022, p. 15-80, Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting, ELI

THE GREEN DEAL TODAY: controversies

THE GREEN DEAL TODAY: CONTROVERSIES

The Green Deal and the surrounding strict environmental norms introduced at the European level has been criticized for hindering European companies' competitivity on the global market, as the European Union's institutions have not yet addressed their free-market policies that favor cheaply made, imported products from outside their borders if they comply to minimal health criteria. This method has been particularly disadvantageous not only for industrial actors within the EU, which has lost a significant chunk of their industrial power in favor of China and the USA, but also for European farmers, who can't relocate and are pushed to depend on subsidies and little revenue from their labour. Their anger culminated all over the EU at the beginning of 2024 in the form of extended protests in their capitals and/or blocks of main roads.1 This has led to six French far-right EU MEPs to sign a resolution meant to "abolish" the Green Deal on February 8th, 2024.[2]

WHAT DOES IT MEAN FOR THE GREEN DEAL'S 2040 GOALS?

The pushback from the industries most affected by the ecological transition, especially the agricultural sector, has succeeded in slowing down the adoption of environmental protection measures by the EU institutions. Ursula Von Der Leyen has given up on her goal of decreasing pesticide use by half by 2030 as controversy arose across the continent. "Rising discontent could hamper attempts to adopt the 2040 goal of 90 percent emission cuts."[3]

More generally, the Green Deal has faced pushback in 2023, when the introduction of a carbon tax on heating oil and gasoline was blocked by Parliament due to the impact it would have European households, who have already lost a lot of their buying power following the recent economic crisis. Another text that meant to turn 10% of agricultural land into highly diverse crops to restore biodiversity was blocked, as right-wing and liberal MEPs judged that farmers were already under too much stress from existing environmental legislation.4 In a nutshell, the Green Deal has neglected the negative economic and social impact of environmental policies, causing an anti-climate movement to take form within the European political landscape. To quell the rising discontent, the EU will have to focus on making the environmental transition more inclusive, more just and more economically viable for all industries.

1. Canas, Nathan. "Colère Agricole : Le Green Deal à l'Épreuve d'Une "Crise de Confiance", Selon Le Président de La Région Bretagne." Www.euractiv.fr, EURACTIV, 6 Feb. 2024. Accessed 13 Feb. 2024.

2. Messad, Paul. "Des Eurodéputés RN Signent Une Résolution Pour "Abolir" Le Green Deal.www.euractiv.fr, EURACTIV, 8 Feb. 2024. " Accessed 13 Feb. 2024.

3. AFP, et al. "What's at Stake at the EU's 2040 Climate Target." Euroefe.euractiv.es, EURACTIV, 9 Feb. 2024

4. Vuetaz, Audrey. "Green Deal : "Si Nous Faisons Une Pause, Notre Transition Écologique Sera Made in China." Public Sénat, 12 Feb. 2024. Accessed 13 Feb. 2024.

The takeaway for companies

- The Taxonomy does not force you to change your activities or invest to better your performance in its criteria
- The Taxonomy makes you visible to private investors who seek sustainable investments.
- The Taxonomy requirements and ESRS can be used to steer your company's ecological transition towards institutionally recognized standards
- It's a legal requirement for 50k companies by 2028 (see CSRD).
- Despite the various controversies around the Green Deal, the Taxonomy regulation and the CSRD have already been adopted by the Commission and put into effect and will not be rolled back. As shown in this chapter, product-as-a-service models constitute the key to an environmentally AND economically sound transition for European companies. They have been identified as such by the European Commission in the Taxonomy.

TO GO FURTHER: EU funding opportunities for companies for their transition to more sustainable models

If your organisation is working on environmentally friendly innovations, no matter its nature or the sector, it might be eligible to significant EU investment funds, such as:

- **Horizon Europe for large-scale projects:** it is the main EU program created to finance research and innovation (R&I) from 2021 to 2027. It has 95.5 billion euros to allocate to relevant projects in that timeframe. Its goals are to tackle climate change, help the EU pursue the United Nations' sustainable development goals and its own policy goals, and boost the region's competitiveness and growth. They cover essentially all sectors of the economy, in the public, academic, charity and private sectors : Health ; Culture, Creativity & Inclusive Societies ; Civil Security for Society ; Digital, Industry & Space ; Climate, Energy & Mobility ; Food, Bioeconomy, Natural Resources, Agriculture & Environment.
- **LIFE program:** LIFE is a well-established EU program born in 1992, with its last funding period going from 2021 to 2027 voted to be 5.432 billion euros total, with 1.345 billion dedicated to the subprogram "Circular Economy and Quality of Life". The latter "aims at facilitating the transition toward a sustainable, circular, toxic-free, energy-efficient and climate-resilient economy and at protecting, restoring and improving the quality of the environment, either through direct interventions or by supporting the integration of those objectives in other policies."
- **Financial help from your region and interregional calls for projects** thanks to the European Regional Development Fund.

To ask for funding from any of these sources, one may go through the official EU Funding and Tenders online portal. It is possible that one's project corresponds to one of the already existing calls for proposals in the portal, so make sure to consult it beforehand.

PaaS:

Research & Academics

ADEME

ADEME, the French Agency for Ecological Transition, operates under the supervision of the Ministry for an Ecological Transition and Territorial Cohesion, the Ministry for Economy and Finance, and the Ministry for Higher Education and Research.

Activities include climate change, circular economy, air quality and mobility, energy, sustainable production, urban planning, agriculture and forestry, building sustainability, behavioral change, and community mobilization.

€ 1148 M	1457	17
million budget in 2023	Employees	Regional offices

Our missions

Amplify the deployment of the ecological transition

Contribute to collective expertise

Innovate and prepare for the future

Website

Pierre Galio

Head of Department Responsible Consumption at ADEME

An alumnus of the French National Engineering School of Mechanics and Aerotechnics (ENSMA) and holder of an Advanced Studies Diploma in Energy, Pierre GALIO has spent his entire career at ADEME. Within the Industry Department, he supported R&D projects on energy efficiency of industrial processes before joining the Customer Department, aiding sustainable development efforts. He then led the Partnership Unit, developing tools for public mobilization (European Waste Reduction Week, Carbon Coach™) and worked on sports & ecological transition (2007 Rugby World Cup™, Roland Garros). In 2011, he managed the Waste Planning and Observation Service before leading the Responsible Consumption Service. Since then, His focus shifted from waste prevention to the broader environmental impacts of consumption (carbon footprint, resource use) and structural factors (advertising) while promoting alternative models, like functional economy and sobriety.

PUBLICATIONS

April 2024	Carnet des projets 2024 - programme COOP'TER
November 2023	Programme COOP'TER - Territoire de Services et de Coopérations
October 2023	Cap sur COOP'TER
March 2023	Économie de la fonctionnalité et de la coopération - Vers une communauté de recherche en Sciences humaines et sociales
December 2022	Coopérer avec les entreprises et les acteurs de mon territoire
October 2022	CIRIDD avec le soutien de l'ADEME Intégrer l'économie de la fonctionnalité dans la commande publique Recommandations, analyse, guide méthodologique et fiches trajectoires des collectivités
Dec.23 - Jan. 24	ADEME Magazine n°171 - La sobriété n'est pas qu'une question énergétique Zoom sur l'EFC dans les " Temps forts "

ADEME IS A STRONG ADVOCATE FOR THE "COOPERATIVE AND FUNCTIONAL ECONOMY,"

"Cooperative and Functional Economy" is a French concept taking Product as a Service (PaaS) one step further, integrating strong environmental, social, and territorial ambitions.

Benefits:

- **Economic:** Adopting a user-centered approach rather than simply selling a product allows companies to develop a robust, long-lasting business, differentiate from competitors, and retain customers.
- **Ecological:** moving away from a volume-driven logic, sharing and extending the product lifespans significantly reduce natural resource consumption and positively impact the environment.
- **Social:** Valuing employee skills based on the shared understanding of real work conditions can generate positive societal effects.
- **Territorial:** Local cooperation dynamics that address territorial issues will strengthen local economies.

ADEME has developed a comprehensive program with 3 main strategies:

1. Support for businesses.

- Expand and multiply partnerships with business networks.
- Provide personalized support to companies throughout their journey based on their maturity.
- Conduct environmental and social assessments of projects.
- Perform monitoring and benchmarking.

2. Promote intra- and inter-network cooperation

- Strengthen support for territorial and national coordination.
- Encourage experience sharing to better disseminate practices.
- Conduct strategic thinking on the network of actors in France and internationally.
- Cooperate with other technical services of ADEME, the Research Directorate, and ADEME Regional Directorates.

3. Communicate intensively and train for institutions and the private sector, both nationally and regionally, leveraging ADEME's extensive local network.

Challenges & Levers

Challenges

- Functional and Cooperative Economy is not well-known
- Measuring environmental and social benefits is challenging
- Transitioning from short-term transactions to long-term relationships is difficult for companies
- Public procurement rules favor the lowest bidder

Levers

- Capitalize and communicate on experienced actors.
- Launch projects to scientifically measure and evaluate the impact of these models on companies and ecosystems .
- Build trust among actors through co-construction of offers.
- Adapt public procurement rules to integrate environmental and social clauses – Increase Public Funding for social and economic innovation.

ADEME's recommandations to go further

- Develop indicators and tools to measure environmental and social impacts of such models > underway with several ADEME projects launched.
- Fiscal changes (VAT adjustments, ...) will help develop this new economy
- Adapting current regulatory barriers is necessary. For example transporting used products for recycling or reuse across borders can be challenging.
- Intensive communication is needed to influence behaviors and accelerate the adoption of usership against ownership.

The Advanced Services Group, Aston Business School

The Advanced Services Group (ASG) is a research centre at Aston Business School, Aston University (UK) that focuses on servitization and advanced services. Their mission is to transform businesses through the use of models, tools, and frameworks for service-led strategies, with a focus on helping manufacturing companies and technology innovators adopt " servitization "— a change in business models that emphasises the outcomes enabled by the use of the product. Their highly-cited research is recognised internationally and used by firms across the globe.

Website

Iain McKechnie

Director of Strategic Partnerships, Specialisms: Adoption of new business models in SMEs; Mentoring global firms as they transform through Servitization; Servitization and Business Transformation through the adoption of new Business Models.

Author: Servitization Applied: An Insight into Small and Medium Sized Businesses (2018 - 2nd edition 2019)

Professor Tim Baines

Professor Ali Z Bigdeli

Professor Andreas Schroeder

Dr Ahmad Beltagui Meng

Dr Yang Zhao

Dr Antonio Masi

PUBLICATIONS

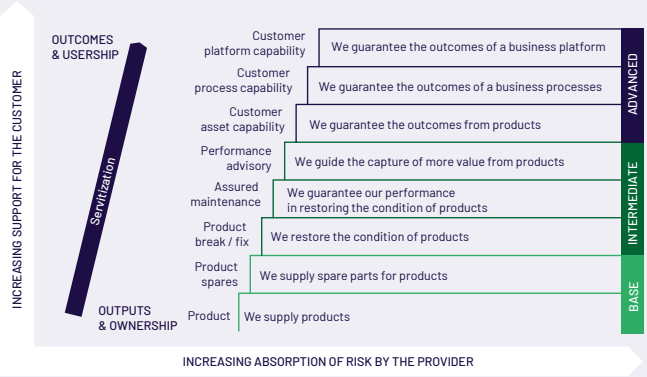
Prof Baines
Prof Bigdeli
Prof Schroeder
Dr Beltagui
Dr Zhao
Dr Masi
ASG Research & Publications

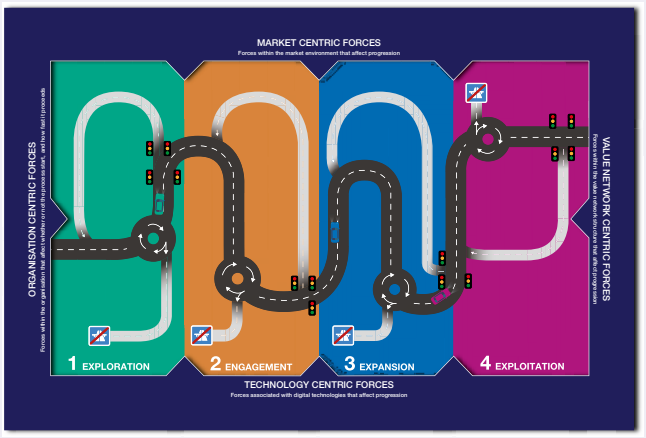
PRODUCT AS A SERVICE (PAAS) CAN BE A POWERFUL TOOL FOR ORGANISATIONS AIMING TO BE MORE SUSTAINABLE

- **Reduced waste:** In a PaaS model, the company retains ownership of the product. This incentivises them to make durable, high-quality products built to last.
- **Resource conservation:** By extending a product's lifespan, PaaS reduces demand for raw materials and the energy used in production. This translates to less mining, drilling and deforestation.
- **Remanufacturing and refurbishment:** PaaS providers can collect used products, or components, refurbish them, and reintroduce them into the service cycle. This gives products a second life and reduces reliance on virgin materials.
- **Data-driven optimisation:** PaaS allows for real-time data collection on product usage through the Internet of Things (IoT) This data can be used to identify areas for improvement, such as optimising energy consumption or extending product life through preventative maintenance. We see this with firms such as as this one
- **Focus on performance, not ownership:** PaaS encourages organisations to focus on the service a product provides rather than just selling the physical product itself. This can lead to innovation in product design that prioritises efficiency and sustainability.

Overall, PaaS promotes a shift from a linear "take-make-dispose" economy to a more circular one, where products are designed to be used for extended periods, reused, and recycled. This can have a significant positive impact on the environment.

Good examples of circular business models can be found at: HERE and also at: HERE





Recommendations, advice & future research exploration

Product-as-a-Service (PaaS) is an evolving field, presenting ample opportunities for academic research. Here are some potential areas that academics could delve into:

- **Optimising Business Models:** Developing new pricing structures - Evaluating financial viability...
- **Understanding Customer Behavior:** Investigating customer adoption - Optimising customer experience...
- **Impact Assessment and Social Implications:** Analysing environmental benefits - Assessing social equity...

By delving into these areas, academics can contribute significantly to the development and successful implementation of PaaS models. Their published research, and future research, can inform business strategies, optimise customer experiences, and ensure PaaS contributes to a more sustainable and equitable future.

Basel Agency for Sustainable Energy (BASE)

The Basel Agency for Sustainable Energy (BASE) is a Swiss not-for-profit foundation and Specialized Partner of the United Nations Environment Program.
The expertise and mission of BASE is in developing innovative, actionable financial strategies and market-driven solutions to unlock investment in climate change solutions. The actionable solutions that the foundation deploys seek to be disruptive, self-sustaining and replicable. Within these innovations, part of the team of BASE focuses on X-as-a-Service business models. In its whole, BASE has 25 employees, which include economists, financiers, engineers, digitalisation specialists and communication experts.

Dimitris Karamitsos

Senior sustainable finance specialist and business development lead

BASE's Sustainable Finance specialist and Business Development Senior Specialist with over 15 years of professional experience. Dimitris has extensive experience supporting private companies with the implementation of inclusive business models, environmental standards, projects management and impact measurements and a deep understanding in the climate finance sector and development projects as well as in green technologies. Within BASE, Dimitris plays a key role in accelerating the deployment of the servitisation business model across geographies through the Cooling-as-a-Service initiative and the Efficiency-as-a-Service program. His expertise lays in developing and deploying new business models and financial structures for energy-efficient equipment and facilitating the market transition towards energy efficiency. He is currently leading the global development of the SET Alliance, for the development of energy efficiency technologies. The mission of the SET Alliance is to accelerate the transition towards a net-zero and climate-resilient future, with a particular focus on circular economy practices and solutions.

The team that is involved in X-as-a-Service models include

Emma Wink
Sustainable Finance Specialist & SET Alliance coordinator

Yannick Heinrich
Sustainable Finance Specialist & Servetia Project Lead

Carla Della Maggiora
Deputy Director & Circular Economy specialist

Francisco Ramirez
Senior sustainable finance specialist

PUBLICATIONS

Cooling as a Service white paper
Applying Servitisation for Circularity
Economical study of Cooling as a Service
Case study of EaaS in industry

More publications on the global Servitisation for Energy Transition (SET) Alliance
More publications on the EaaS website
More publications on the CaaS website

HOW CAN PAAS MODELS CONTRIBUTE TO SUSTAINABILITY ?

When deployed appropriately, the model can support organisations towards sustainability in the following manner:

Energy conservation through systemic efficiency: by integrating energy consumption into pricing, PaaS incentivizes providers to enhance systemic efficiency to optimize profit margins over the contract period.

Resource conservation through circularity: PaaS encourages circularity since the service provider owns the assets, promoting minimal material use while delivering value, unlike traditional sales that profit from spare parts and maintenance.

Digitalisation: ownership of assets enables digital tools for optimizing system performance, lifecycle management, and emissions tracking, benefiting both customers and providers economically.

Limited stranded assets: PaaS incentivises the asset owner to establish a strategic network of assets which can be repurposed to customers which need it most.

Enhanced reporting and monitoring: ownership and consumption-based compensation motivate accurate measurement of service usage, providing automatic reporting on energy use, GHG emissions, and performance, improving transparency and offering clear sustainability insights to both customers and financiers.

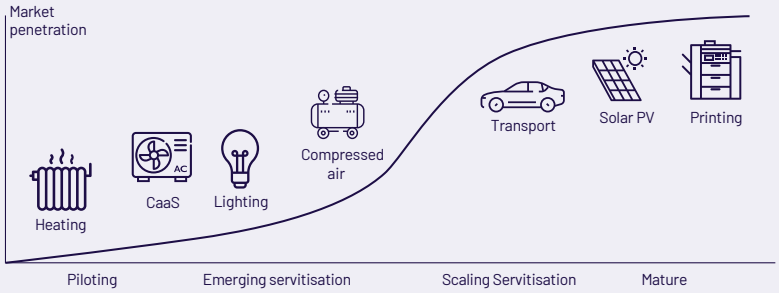
BASE FOUNDATION WORKS TO SUPPORT PAAS MODELS

The work of BASE related to PaaS business models involves supporting markets across the world and industries to deploy the approach in a sustainable, actionable manner, scaling energy efficiency, renewables and circular economy.

To do so, BASE designs, leads and implements flagship initiatives, such as: The Cooling as a Service and Efficiency as a Service programs, Servetia and the global Servitisation for Energy Transition (SET) Alliance

Within each of these, BASE has supported governments, associations, technology providers, financiers and customers in adopting the approach by working on five key pillars:

- Creating open-source tools and material which supports players in adopting the model: standardized contracts, pricing models...
- Capacity building, by supporting stakeholders implementing and deploying the model..
- Building a network of entities implementing the model to create a pipeline of opportunities and raise interest from customers, financiers and governments.
- Creating case studies and marketing material to build trust on the model.
- Raise funds for dedicated projects promoting PaaS.



Recommendations, advices & future research exploration

- MRV Methodology: Standardize performance measurement for PaaS to highlight impact on energy transition and Net Zero.
- Regulations: Enforce stricter efficiency and circularity rules; allow off-balance assets in buildings.
- Government: Adapt procurement to support PaaS and circular economy investments.
- Investment: Align with financiers to improve funding for PaaS contracts.

Grenoble INP

Grenoble INP is part of Université Grenoble Alpes (UGA), a French public university that brings together over 57,000 students in 30 different schools and faculties, offering 600 training programs.

Grenoble INP is composed of eight high-end schools of engineering and management associated with 38 research laboratories in various scientific and academic disciplines. In particular, CERAG focuses on management research, while G-SCOP focuses on engineering research. Among other things, these labs research servitization, Product-Service Systems (PSS), sustainability, and regenerative business models.

Project example: ACCEL4.0 partnership between Grenoble INP and Ain's UIMM has a research track dedicated to digital servitization

Website

Boris Descombes

Researcher in the ACCEL 4.0 project, PhD candidate

Before embarking on a research career, he co-founded and co-directed two service companies specializing in innovation management and intrapreneurship. During this time, he developed expertise in transforming organizational cultures to become more innovative, agile, and entrepreneurial. His primary mission was to provide assistance and training to top and middle management in high-tech sectors such as the space industry, semiconductors, and IT.

Since 2021, he has transitioned to a research position to study the shift in traditional product-oriented manufacturing business models, which he had previously observed in practice. He is currently pursuing a PhD, supervised by Valéry Merminod and Marie-Anne Le Dain, as part of the ACCEL 4.0 project. His research involves collaborating directly with manufacturing companies to generate empirical and practical knowledge that supports both environmental and economic success.

Additionally, he delivers guest lectures at prestigious institutions such as Sciences Po Paris, Emlyon, and Grenoble INP, and provides both intra- and inter-company training on servitization, digitalization, and innovation management.

PUBLICATIONS

ENGLISH PUBLICATIONS:

" Toward Smart Product-Service Systems : understanding the outcome of digital servitization " 2022 – Spring Servitization - Boris Descombes, Dalenogare, Lucas Santos, Marie-Anne Le Dain, Valéry Merminod

" Specifying data access paradoxes in digital servitization: an empirical study " - 2024 - Euroma - Boris Descombes, Marie-Anne Le Dain, Valéry Merminod

" Multichannel Digital Service Delivery and Service Ecosystems: The Role of Data Integration within Smart Product-Service Systems " 2022 - Technological Forecasting and Social Change - Dalenogare, Lucas Santos, Marie-Anne Le Dain, Guilherme B. Benitez, Néstor F. Ayala, et Alejandro G. Frank.

" Building Digital Servitization Ecosystems: An Analysis of Inter-Firm Collaboration Types and Social Exchange Mechanisms among Actors " - 2023 - Technovation -Dalenogare, Lucas Santos, Marie-Anne Le Dain, Néstor F. Ayala, Giuditta Pezzotta, et Alejandro G. Frank.

" Barriers and Opportunities of Digital Servitization for SMEs: The Effect of Smart Product-Service System Business Models " - 2023 - Service Business, Le-Dain, Marie-Anne, Lamiae Benhayoun, Judy Matthews, et Marine Liard.

FRENCH PUBLICATIONS:

" Vers une économie de la fonctionnalité : la contribution significative du numérique " - 2024 (currently reviewed) Ouvrage FNEGE **" Décarbonnation du numérique "** - Boris Descombes, Valéry Merminod

" Productisation des systems produits services intelligents " - 2024 – AIM - Boris Descombes

Paas models aim to reverse the traditional performance dynamic by aligning the economic goals of manufacturers with the reduction of resource consumption and the optimization and extension of product life cycles

While the transition to service-centric business models is far from easy, literature cases show that it is often conducted as a continuous incremental process over a long time. Manufacturers often leverage these new models to innovate and differentiate from competitors. Seeking to develop these models also enables in-depth long-term relationships with customers, leading to the development of more robust and resilient businesses.

In PaaS models, the integration of servitization and digitalization is crucial, as it enables the development of innovative offerings that generate more sustainable and economic value, which was previously difficult to achieve.

We believe that digitalization can be a key enabler in meeting the expected performance outcomes. However, without a thoughtful approach, digitalization may negatively impact both economic and sustainable performance.

One of the key advantages of Product-as-a-Service (PaaS) and result-oriented business models is their potential to transform how manufacturing companies capture value. Notably, these models can serve as a first step towards regenerative business practices, which seek not only to minimize environmental impact but also to restore living ecosystems.

RECOMMENDATIONS, ADVICES & FUTURE RESEARCH EXPLORATION

There is often confusion between **" business models "** and **" value capture models. "** Changing the way a company charges its customers, for example, from selling a product to selling usage units of this product (i.e., PaaS), is only related to the value capture. This is not just a marketing problem; it also implies fundamental changes in the way the company operates, the capabilities it needs, etc. **Overall, we call for a more business model-level analysis, not only at a value capture level.**

For academics, we remind and insist on the fact that business model innovation is inherently a multidisciplinary topic. We advocate for extensive collaboration across research disciplines in order to create comprehensive, integrated, and impactful models.

For companies, we encourage trying and experimenting with service-based business models with an open-minded approach. The rules and results differ from those of traditional businesses. For example, when evaluating the results, it doesn't seem appropriate to compare short-term performance between a PaaS and a traditional product-centric model using traditional metrics.

For European and national institutions, we recommend implementing policies that encourage the shift towards a functional economy. This economic model offers significant advantages over traditional linear and mass consumption models, such as the ability to sustain industrial performance while achieving sustainability goals. However, implementing this shift requires substantial transformations that businesses may not be prepared to undertake on their own. Therefore, promoting and supporting this transition seems necessary to make it a reality.

Research Institutes of Sweden (RISE)

RISE, Research Institutes of Sweden is Sweden's research institute and innovation partner. Its mission is to strive for sustainable growth in Sweden by strengthening the competitiveness and capacity for renewal of Swedish industry, and the innovative development of society as a whole.

RISE was established as a merger of existing industry-specific research institutes in 2018. It now has more than 3000 employees and a turnover of €400 M.

RISE has a broad field of expertise and assignments. Examples of areas important for the circular transition include or example system transition, business model innovation, product design, material and chemical management, recycling technology, production systems, energy efficiency, and waste management.

Website

Ann-Charlotte Mellquist

Senior Researcher and Director of the Sustainability Analytics Unit at RISE

She has an extensive background in business and finance, holding an MSc in International Business and an MBA in Innovation Enterprise and Circular Economy. Since joining RISE in 2015, she has conducted research on circular business models, circularity metrics, and circular finance. Her work primarily focuses on the most value-retaining circular models, promoting product longevity and high utilization, such as Product as a Service models.

A central theme in her research is the value dimension of the circular economy, including various aspects of financing. She has collaborated on several projects with banks and other financial institutions. She has also contributed to exploring artificial intelligence-based price predictions and business ecosystem development. In 2023, she played a key role in developing the Nordic Roadmap for Circular Financing in partnership with the Nordic Circular Hotspot and financial actors across the Nordic countries.

PUBLICATIONS

Mellquist, A., Boyer, R. & Williander, M. 2021. Market Endurance: A cost-accounting based metric for measuring value retention for the Circular Economy. Resources, Conservation and Recycling, 179, 2022.

Fallahi, S., Mellquist, A.-C., Mogren, O., Listo Zec, E., Algurén, P., & Hallquist, L. (2022). Financing solutions for circular business models: Exploring the role of business ecosystems and artificial intelligence. Business Strategy and the Environment, 1- 16.

Boyer, R. H. W., Mellquist, A. et al. 2021. Three-dimensional product circularity. Journal of Industrial Ecology.

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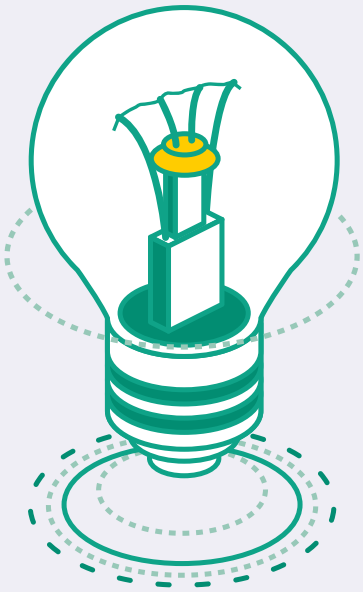
CHALLENGES & LEVERS: FINANCING PAAS

Product-as-a-Service (PaaS) implies that the supplier does not sell the product itself but instead retains ownership and sells its usage or - better yet - the benefit of its usage, to the customers. This shift results in a complete transformation of business logic. The traditional linear model follows a volume and flow-based logic: the faster and more resources flow through the system, the higher the profits. The PaaS logic, however, works in the opposite direction: the longer the existing product is used, the higher the profits.

While these models are common in certain areas-such as construction equipment, forklifts, and printers—they are new and largely untested for the majority of finished goods in the economy.

Adopting such a business model is no simple task for a company. It will have extensive impacts on everything from strategy and organization to steering KPIs, team incentive remuneration schemes and collaborations in the value chain.

Financing is a specific challenge, as products or machinery will remain as assets of the supplier. This could impact both short-term traditional company valuation and short-term cash generation. Rapid growth exacerbates this financing problem, as cash flow gaps will widen with fast-paced scaling. At the same time the PaaS model has the advantage of generating more stable revenue streams and higher profitability in the long run.



RECOMMENDATIONS FOR COMPANIES & FINANCIERS

For PaaS company

Be clear and specific about your business case and the risks and opportunities involved, e.g:

- Compare circular and linear business case - over the right time period
- Show linear risk
- Use relevant KPIs
- Reflect on speed of scaling

Work with your product and assets to strengthen them for the circular business model, e.g:

- Future Adaptive Design
- Build an aftermarket
- Use AI to assess residual value of collateral

For financier

Consider how you can share risk with other stakeholders and create new or adapted finance products, e.g:

- Customer financing
- Industry-specific financial actors (with refinancing)
- Hybrid products (venture debt)
- Public risk off-take

Offer new or revised products and solutions, e.g:

- Lease-back or leasing chains
- Stepwise loans
- Contract lending
- Pay-per-use financing

General recommandations

Accounting, Corporate and Asset valuation need to be further explored: depreciation principles and adapted KPIs should be adapted to better assess the PaaS models.

There is also a need to rethink risk sharing among stakeholders. This is an area where national and European institutions could contribute and make a positive impact. Establishing new institutional funds focused on circular business and long-term goals is also an effective way for national governments to support the financing of the circular transition.

Both companies and financial institutions need to take action and adapt their risk and remuneration frameworks, creating opportunities for new collaborations.

Tampere University

Tampere University is one of the most multidisciplinary universities in Finland. They bring together research and education in technology, health and society. The University is known for its excellence in teaching and research and it collaborates with hundreds of universities and organisations worldwide.

Website

Olli Kuismanen

Researcher at Tampere University

Experience from disruptive innovations and business models from large corporations to start-ups/scale-ups, creating value-based sales capabilities. Olli's first PaaS was creating, piloting and scaling up Konecranes' industrial crane as-a-Service business globally. He then became responsible for commercial operations of Tamturbo, where PaaS is a significant business pillar. Recently he has been busy with making a PhD on the life cycle feasibility of PaaS in industrial equipment, diving deep into the operational and financial feasibility of these business models with long life cycle equipment in a constantly changing world. His PhD is estimated to be accepted late 2024. Additionally, he frequently consults companies interested in developing PaaS and hybrid business models as well as differentiation strategies in traditional business models.

PUBLICATIONS

- Drivers of Change Impacting Outcome-Based Business Models in Industrial Production Equipment
- Four Scenarios of Outcome-Based Contracts
- Futures of Outcome-Based Contracts in Industrial Equipment – A Disaggregate Delphi study
- Interconnected management of Outcome Business Model risk in industrial equipment
- Systematic Steps Towards Concept Design of Pay-per-X Business Models: An Exploratory Research

Exploring Paas and Business Model Innovation

Getting Started:

the first priority is to identify the value your offer brings to the customer. It can be simple usage output or more complex combination of value drivers, or even sustainability improvements. An example within the Compressed Air market: instead of providing merely air compressors, TamTurbo proposes "Sustainability-as-a-Service". This offer matches customers' KPI and objectives both in economics and in environmental impact.

Sustainable implementation through time

Sustainability is not just about the environment: it's about developing robust businesses: long lasting and with fewer risks. As it is lowering the environmental impact of a business by shifting away from a product volume-centric mindset, PaaS model is sustainable. But it is also sustainable because it entails long term relationship with customers. Looking into the future from both the customers' and suppliers perspective is a necessity. Partners need to co-create the value of their business over economic cycles and trends. Finally, sharing an asset over an increasing number of actors lowers the risks. In the case of a provider of automation systems, providing "Automation Systems as a service" covers the risk of non-utilization by opening it to many customers.

Organization as a booster for scaling up:

Inertia in large organizations can be circumvented by using separate organizational entities. If exploration and proof of concept for PaaS can take place within a traditional product centric organization, at some point you will need to have an independent entity to successfully scale the new business. It will give your teams the proper incentives, KPIs and tools to operate successfully, and develop adapted customer experience for new market segments. To avoid impacting negatively Tamturbo the current operations, customer segmentation is key, as it will avoid cannibalization of existing business. Through their "Crane as a Service" offering , KONECRANES has made premium products and services accessible to all types of companies, reaching market segments that were previously untargetable with their traditional linear offerings. In doing so, they have also differentiated themselves significantly from competitors who are unable to replicate the same level of service.

IMPACT & VALUE
FOR CUSTOMERS
LONG
TERM RELATIONSHIPS
COOPERATION
SEGMENTATION
ORGANIZATION
CHANGE MANAGEMENT

Overcoming challenges

Financing solutions exist now on the market for PaaS models. But the priority remains in shaping a business model that provides value to your customers and differentiates your company from your competitors.
In addition, as you might not have internally all the capabilities needed to go for a successful PaaS offer, activating partnerships and cooperation with external actors becomes a necessity. This is not a given for all organisations, and setting up a change management program can help ensuring success.
The FutureSpace project (www.futurespace.fi) is a good example of multiple companies collaborating to create a new, value-based joint offering in a traditional business environment, providing indoor air quality improvements through as-a-Service offers.

Recommendations

to accelerate the adoption of PaaS models

PIONEERING PRODUCT-AS-A-SERVICE MODELS IN EUROPE: Insights and Strategic Recommendations for companies

The shift from traditional product sales to Product-as-a-Service (PaaS) models implies a profound transformation of business strategy, reshaping industries through service-centric value creation. Across various sectors, companies are adopting PaaS to align with sustainability, enhance customer satisfaction, and capitalise on technological advancements. This document explores the dynamics of PaaS models, identifies challenges, offers strategic growth recommendations, and outlines the supportive role of policy frameworks.

01

NAVIGATING THE PAAS LANDSCAPE: CHALLENGES AND SOLUTIONS

To fully leverage the benefits of PaaS and foster sustainable growth, companies must strategically overcome numerous challenges:

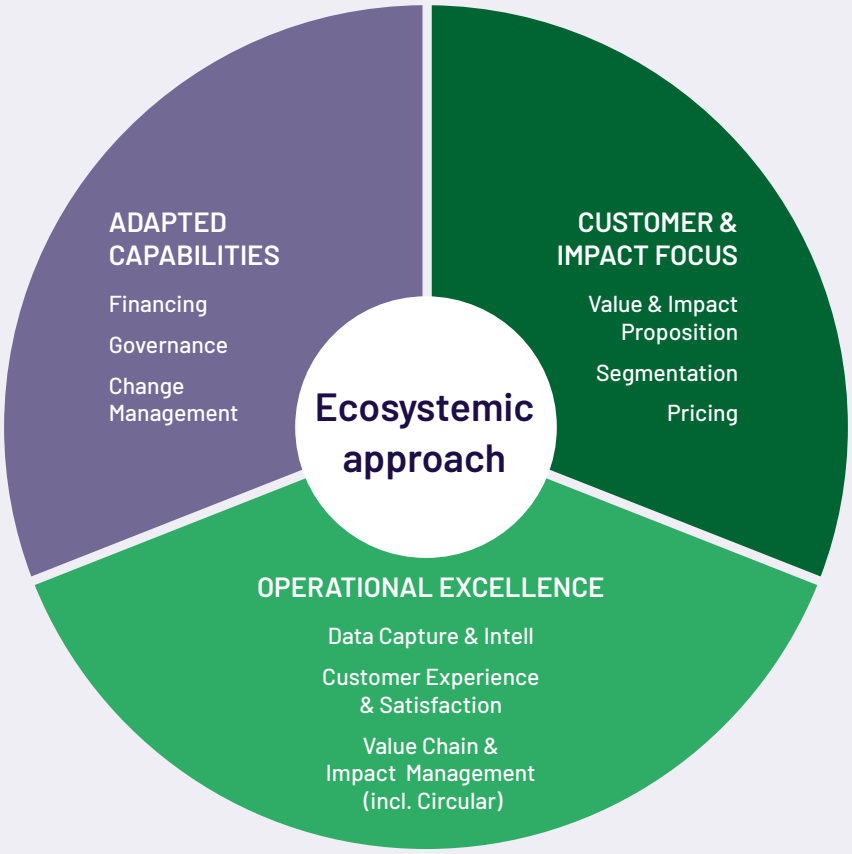
Customer Reluctance to Shift from Ownership to Access	High Initial Costs for PaaS Providers	Environmental Impact and Sustainability	Ensuring Continuous Service Quality	Adapting services to meet different regional regulations	Scaling Across Different Markets	Measuring Performance Effectively
Fostering strong relationships through personalised services and clear value propositions	Embrace Flexibility in Business Models	Integrate sustainability into core strategies	Use advanced technologies like IoT and AI to improve service delivery and operational efficiency	Stay informed about evolving regulations and be agile in adapting business practices	Foster Collaborative Partnerships	Implement Robust Performance Metrics
Decathlon's tailored sports equipment rentals and HP's managed printing services highlight how engaging customers can foster loyalty and satisfaction	Kaer's flexible cooling services and ETAP Lighting's adaptable energy-efficient lighting solutions show how phased investments and modular approaches can ease financial strain	Michelin's focus on tire recycling and HP'ssustainable offer are examples of how sustainability can be embedded into PaaS offerings to align with global environmental standards and customer expectations	Xarvio's digital farming solutions and SKF's predictive maintenance technologies illustrate how technology can drive quality and efficiency in PaaS models	Kaer's and Michelin's ability to adjust their services and operations to align with local regulations demonstrate the importance of regulatory agility in PaaS models	Kaer's partnerships with building management systems and Tulu's local community collaborations highlight the benefits of strategic alliances	Kaer's and Tamturbo's focus on tracking energy savings and efficiency improvements illustrates the value of performance monitoring in PaaS models

02

A NEW PARADIGM: THE RISE OF PRODUCT-AS-A-SERVICE

Driven by evolving customer expectations, technological progress, and sustainability priorities, PaaS is becoming increasingly prevalent across both B2B and B2C sectors. Companies are transitioning to service models that not only meet customer needs but also address broader environmental objectives.

For companies to develop PaaS offers successfully, we strongly recommend to focus on three major topics:



Source: JOHNSTON CIRCULAR - 2024

1. Customer Value and Impact Focus:

- **Value and Impact Proposition:** PaaS models provide access to services or products without the need for ownership, helping customers avoid substantial upfront costs and enjoy flexible payment options. For instance, Tamturbo's compressed air-as-a-service and Kaer's cooling solutions exemplify how companies are facilitating access as opposed to ownership. All this must start from a deep understanding of customers needs. Companies must shift from a "techno-push" approach to a "customers needs-pull" mindset.
- **Segmentation is key:** Not all customers will agree to pay for the value brought by a paaS offer. Consequently, customer segmentation is a must. Decathlon's rental services and Michelin's Tire as a Service are prime examples of effective customer segmentation.
- **Value Based Pricing:** Customers must pay for the value of the service they receive. PaaS is not about leasing or making a product cheaper, it's about providing customers with premium services, offering customers predictable and manageable expenses, and clear sustainable impacts. This is demonstrated by Kaer's or Tulu's use cases: they offer a different value, that needs to be monetized. Setting the proper price for a PaaS offer is the cornerstone of the whole model.

2. Operational Excellence:

- **Data Capture and Intelligence:** Utilising IoT and AI, companies like Tamturbo and SKF harness data to enhance operational efficiency and service delivery. Data will impact the customer experience you provide, as well as your capacity to steer your business. Data is vital to the success of a PaaS offer. However, you must not be blinded by the power of data: it is not because you're proposing a connected object that it will be successful. Data has to meet the real needs of customers - including their willingness to reduce their environmental impact - to be valorized, and therefore monetized.
- **Customer Experience and Satisfaction:** Providers ensure high service quality through regular maintenance and upgrades, as seen with Tulu's product sharing offers, fostering long-term customer loyalty. Customer experience, and above all digital customer experience, is paramount.
- **Value Chain Impact & Management:** PaaS simplifies customer operations and manages product lifecycle complexities, as evidenced by SKF's maintenance services that alleviate operational burdens. However, on the supplier side, it's a completely different value chain that is activated to provide the right level of service and environmental impact. Consequently, your tools and KPIs must be adapted.

3. Adapted Capabilities:

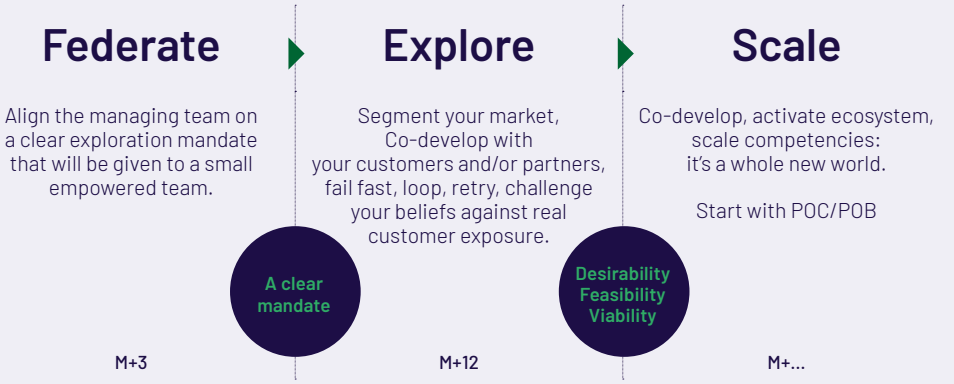
- **Financing:** PaaS providers structure their financing to make high-quality services accessible while ensuring consistent revenue flow, as demonstrated by Tamturbo and Kaer.
- **Governance:** Effective governance, crucial for compliance and service quality, is illustrated by Michelin and ETAP Lighting. Each company must find its own answer to this question, in line with its culture and core values.
- **Change Management:** Adapting to market and customer needs is vital. Companies like Decathlon and Tulu showcase agility and responsiveness essential for PaaS success. Never underestimate the importance of change management when exploring and scalling such models.

Finally, at the very center of everything, Cooperation is the competence that companies must develop to explore and scale PaaS. Many capabilities needed for a PaaS offer might be new to some companies: ensuring digital customer experience, operating a subscription based relationship with end-users, managing a service level agreement through time, selling a service instead of selling a product... The shortest and most efficient way to orchestrate all these changes is to cooperate with partners, including with your customers, to constantly improve the level of service as well as to ensure your sustainable impact.

03

START SMALL, EXPLORE, LEARN, RETRY... AND GROW.

PaaS offers are not just another way to push products to the market. It's a complete transformation of the supplier/customer relationship, involving most of the time additional partners to provide the best service. As such, it necessitates a specific mindset, allowing short test loops and "fail fast" approach. We propose an exploration in three steps:



Source: JOHNSTON CIRCULAR - 2024

Federate and Inspire:

This first phase is for Executive Committees and Board of Directors: all members must agree on the need to explore new business models. The small team that will be in charge of this exploration must be supported with visibility – reporting frequently to the Board – and trust – a "licence to succeed" is a "licence to fail" before succeeding. Exploring a new business model is in fact another R&D.

Explore and Test

In this phase, derived from the Design Thinking Approach, the Graal is customer insights, so that you can build a proper customer value proposition based on it.

- Metrics for Success: Define what success looks like at each stage of testing. Set specific, measurable goals that can be used to evaluate the effectiveness of the PaaS offering.
- Customer Feedback Integration: Implement structured feedback sessions with customers and partners during the testing phase to gather insights and identify areas for improvement.

It is in this phase that you must kill not-so-good ideas. That's why a constant connection to customers and end-users is needed, to test and learn very fast, in very short loops.

Scale and Succeed

Only in this third stage should the questions of financing and organisation be addressed.

- Performance Tracking: Establish metrics to continuously measure performance as you scale.

The evolution to PaaS offers businesses the opportunity to achieve sustainable growth, forge robust customer relationships, and enhance environmental stewardship. By addressing associated challenges, leveraging innovations, and benefiting from supportive policies, companies can lead the transition towards a service-based economic paradigm in Europe.

RECOMMENDATIONS
for Banks & Institutions

Promoting a circular economy and PaaS models in the current economy requires strategic recommendations and comprehensive reforms. The circular economy cannot thrive in the linear reality. "We have to get the economics right" as Ivonne Bojoh of CE Foundation said in her speech at the World Circular Economy Summit 2024. By addressing current economic and regulatory barriers, financiers could better support sustainable practices and foster long-term growth and circular business models (CBM) could deliver economic and environmental outcomes to their best capabilities.

The following four sets of recommendations which emerged from interviews and desk research conducted during the preparation of this white paper, appear to be the most important. We believe that implementing these recommendations can significantly accelerate the adoption of PaaS models in the economy and contribute to its sustainability.

01

REFORMING THE REGULATORY LANDSCAPE FOR CIRCULAR BUSINESS MODELS

Implement economic penalties for negative externalities and incentives for circular business

- Implement negative externalities into cost structures of linear businesses through extra charges, taxes, or penalties (eg. real level carbon tax or environmental tax)
- Create a favorable situation for the circular economy by making it more competitive against linear models by recognizing inherent risks of the linear businesses
- Different policy instruments to favour resource-efficient business and consumption practices eg.tax on virgin finite resources, fiscal incentives for labour heavy models (PaaS), tax and fees incentives for reused products.

02

REFORM ACCOUNTING STANDARDS TO REFLECT CIRCULAR BUSINESS MODELS

- Update accounting standards to recognize circular models and eliminate unfavorable practices like forced amortization and double VAT on long-term rentals.
- Integrate ecological debt into accounting standards.

03

REFORMING THE INSTITUTIONAL LANDSCAPE TO ALIGN WITH CIRCULAR ECONOMY FUNDAMENTALS

Integrate Circularity into Credit Risk Models

- Adapt credit risk models to include circular economy factors under the supervision of financial authorities.
- Ensure future risks related to linear economy are considered, moving beyond traditional credit risks linked to commodities.
- Facilitate adoption of the CE indicators and new KPIs for risk assessment at transaction level.

Improve Access to Financing

- Develop tools and programs to enhance funding accessibility for a broader range of entities, not just top-tier companies.
- Introduce government-backed risk offtake mechanisms to support circular economy investments.

04

ENCOURAGE THE UPTAKE OF CIRCULAR ECONOMY AND PAAS AMONG THE GENERAL PUBLIC AND POTENTIAL CIRCULAR ECONOMY STAKEHOLDERS

Enhance Awareness and Education

- Increase understanding and awareness of circular economy models among key stakeholders, including CFOs, CEOs, auditors, shareholders, and analysts.
- Provide education on the advantages of circular economy models

Engage with Authorities and Policymakers

- Collaborate with authorities and policymakers to introduce more compliance requirements for financial market participants to consider circular economy principles.
- Advocate for regulations that make the cost of linear economy realistic.

Leverage Public Subsidies and Procurement

- Disconnect subsidies from asset ownership to facilitate the scaling of PaaS potential.
- Use public procurement to favor circular economy solutions by integrating circular economy metrics and functional requirements.

We would like to express our sincere thanks to the professionals from financial institutions who took the time to interview us and share their expertise on financing and adoption of PaaS business models.

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Joel Rolfe, Head of Commercial Finance and Sales Ops, Ricoh UK

Samuel Allison, International Programme Manager, SGEF

Gwenael Kervajan, General Delegate, FinEF

Join the PACCT Community

— JOIN THE COMMUNITY —

Our Purpose

Accelerate the sustainable transformation of our economy through the development of innovative business models aiming at replacing volume and product centric offers by customer and impact centric services.

Our Ambition

Create and animate the referent European community of companies, public institutions, banking corporations and research institutes sharing the same purpose.

Our Commitments

Provide our participants with access to structured and unique knowledge to fuel their innovation and explorations of new offers and business models.

Create connections between participants to accelerate knowledge sharing and mutual support.

Promote our ideas at a national and European level.

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Accelerate Cooperation and
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